UNIVERSITY OF SANTA CLARA BULLETIN

SERIES V · NUMBER V · AUGUST 31 · 1970

UNDERGRADUATE COURSES AND DEGREES 1970-1971

SANTA CLARA · CALIFORNIA · 95053

UNIVERSITY OF SANTA CLARA

UNDERGRADUATE COURSES AND DEGREES BULLETIN 1970-1971

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UNDERGRADUATE CATALOG

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General Information

UNIVERSITY ACCREDITATIONS AND MEMBERSHIPS

One Hundred and Twentieth Year

1970-71

Accredited by the Western Association of Schools and Colleges
Accredited by Engineering Council for Professional Development
Accredited by the American Chemical Society
Accredited by the State Bar of California
Accredited by the American Association of Collegiate Schools of Business (Undergraduate and Graduate Programs)
Accredited by California State Board of Education
Approved by the American Bar Association
Approved by the American Medical Association
Member of Jesuit Educational Association
Member of American Council on Education
Member Council of Graduate Schools in the United States
Member of Association of American Law Schools
Member of Conference of Jesuit Law Schools
Member Conference of Western Law Schools
Member of College Entrance Examination Board
Member of Association of American Colleges
Member of The American Association of Colleges for Teacher Education
Member of American College Public Relations Association
Member of American Alumni Council
Institutional Member of the American Mathematical Society

THE UNIVERSITY OF SANTA CLARA

Santa Clara, California 95053

UNDERGRADUATE CALENDAR 1970-71*

Fall Quarter

September 7	Monday	Labor Day, Administrative Holiday.
September 19-21	Saturday-Monday	Freshman Orientation.
September 22	Tuesday	Freshman registration, P.M.
September 23	Wednesday	General registration (Sophomores, Juniors and Seniors).
September 24	Thursday	Instruction begins.
September 30	Wednesday	Last day for late registration and the adding of courses.
October 19	Monday	Last day for seniors to file for candidacy for Graduation 1971.
November 3	Tuesday	Undergraduate deficiency grades announced.
November 9	Monday	Last day to withdraw from courses.
November 20	Friday	End of Academic Counseling for Winter and Spring Quarters.
November 26-27	Thursday-Friday	Thanksgiving Recess—Academic and Administrative Holiday.
November 30	Monday	Classes resume.
December 7-11	Monday-Friday	Fall Quarter examinations.
December 15	Tuesday	Fall Quarter grades due at 9 a.m.
December 12-January 3	Saturday-Sunday	Christmas Recess.
December 24-25	Thursday-Friday	Christmas, Administrative Holidays.
December 31-January 1	Thursday-Friday	New Year's, Administrative Holidays

Winter Quarter

January 4	Monday	Undergraduate registration.
January 5	Tuesday	Undergraduate instruction begins.
January 11	Monday	Last day for late registration and adding courses.
February 15	Monday	Washington's Birthday, Academic and Administrative Holiday.
February 17	Wednesday	Undergraduate deficiency grades announced.
February 24	Wednesday	Last day to withdraw from course.
March 17-20	Wednesday-Saturday	Winter Quarter undergraduate examinations.
March 22	Monday	Winter Quarter undergraduate grades due.
March 21-28	Sunday-Sunday	Spring Recess.

Spring Quarter

March 29	Monday	General Undergraduate registration.
March 30	Tuesday	Undergraduate instruction begins.
April 5	Monday	Last day for late registration and adding of courses.
April 9	Friday	Good Friday, Academic and Administrative Holiday.
May 5	Wednesday	Undergraduate deficiency grades announced.
May 7	Friday	End of Academic Counseling for Fal Quarter.
May 11	Tuesday	Last day to withdraw from courses.
May 19	Wednesday	Last day to file undergraduate pre-registration forms.
May 31	Monday	Memorial Day, Administrative and Academic Holiday.
June 7-10	Monday-Thursday	Spring Quarter undergraduate examinations.
June 7	Monday	Senior grades due at noon.
June 15	Tuesday	Spring Quarter grades due.
June 12	Saturday	120th Commencement.

*All dates are inclusive dates.

1970

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HISTORICAL PERSPECTIVE

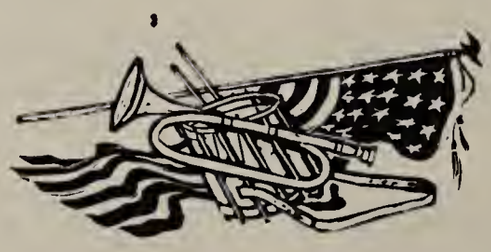
On January 12, 1777, six months after the signing of the Declaration of Inde pendence, a cross was planted at a site in the present city of Santa Clara by a Fran ciscan Padre, Tomas de la Pena, to mark the founding of the eighth of California original twenty-one missions, Santa Clara de Assis.

Three quarters of a century elapsed before the University of Santa Clara or Sant Clara College as it was first known, opened its doors as an institution of higher learn ing. In the intervening years, however, the Mission served as a spiritual center an school for the Indians. Besides religious instruction, the men were taught stockraisin farming and the building trades; the girls, weaving and sewing; the boys, readin music and religious drama. From 1777 until Mexican government secularization, Feb ruary 27, 1837, some nine thousand persons were baptized at the Mission. More tha eight thousand of these were young or adult Indians.

During the early period, the less solidly built Mission buildings of the first an second sites were destroyed by the flooding waters of the Rio Guadalupe. The thi Mission church, of adobe, was completed in 1784 but was seriously damaged b earthquake in 1812 and 1818. A fourth church, likewise of adobe, was used temp rarily from 1819 to 1825. The larger fifth Mission with its quadrangle patio, also adobe, was completed and dedicated August 12, 1825. The University's Adobe Lodg Faculty Club formed the west wing of the quadrangle.

The first site of Mission Santa Clara is marked by a California State historic landmark, located near the intersection of Kifer Road and De la Cruz Boulevar Crosses mark the second site at De la Cruz Boulevard and Martin Street, and th third site at Campbell and Franklin Streets. The fourth Mission Church stood in th area between Kenna and Delia Walsh Halls on the University campus of today.

During the first three decades of the nineteenth century, the old Mission enjoye its most fruitful years. In 1827, well over fourteen hundred Indians lived within sour of the Mission's bells. In that year, some 15,500 sheep, 14,500 head of cattle ar abundant crops of wheat, corn and beans were produced and cared for by the Indian under the Padre's guidance.



A combination of factors terminated the decades of prosperity at Santa Clara d the other California Missions. The Mexican War of Independence brought turmoil m 1810 to 1821 with resultant decrease of Franciscan personnel and donations in from benefactors. The new Mexican government took possession of the old Jesuit us Fund of the Californias that had been the main source of support for the Mission. st of the Indian's lands, cattle and sheep became the object of spoliation by unupulous civil administrators.

In 1827 and again in 1829 governmental decrees ordered exile for all Spaniards o refused allegiance to the new regime. Since most of the Mission Padres were m Spain, many chose banishment. Some, however, remained until, in 1833, Mexican nciscan replacements arrived from the missionary college of Zacatecas. Among them s Fray Francisco Garcia Diego y Moreno who was to become the first bishop of Californias. Although thoroughly committed to the welfare of the Indians, the dres' resistance to governmental encroachment upon the Indians' rights and propy had little effect. Finally came full secularization of Mission properties, imposed at ssion Santa Clara in early 1837. This ended the effectiveness of the Franciscan ssionary endeavor in Alta California. Within a few years, the Mission buildings and Indian lands, cattle and sheep fell to the possession of the civil officials and ir friends.

In the early 1840's a new people and a new way of life came to Alta California. st of the immigrants were Anglo-Americans, attracted by the rich lands of the Santa ra Valley. In 1848, the Treaty of Guadalupe Hidalgo ceded California to the United tes. Statehood was granted in 1850.

It was in this setting that Santa Clara opened its classroom doors in May of 1851. e new Dominican bishop of San Francisco, Joseph Sadoc Alemany, had asked the uit Father John Nobili, formerly of the Oregon Missions, to open a college at the ssion of Santa Clara. With the bishop's words of encouragement and his personal of $50, Father Nobili did so. During the first academic year, 1851-52, Father Nobili d a faculty of three other Jesuit priests and four competent lay professors gave inuction to twenty-six students in arts, sciences, music and drama. By 1858, new entific apparatus arrived from Paris and integrated courses in science as well as the classics and in commerce were offered.

April 28, 1855, Santa Clara College received its charter from the State of California full legal approbation of the school's academic functions. Slow but steady growth owed and distinguished graduates became prominent members of California life. wever it was not until the Schools of Law and Engineering were founded in 1912 d the courses in the Humanities and the Sciences were expanded that the College came the University of Santa Clara.

Meeting the demands of urban growth in the Santa Clara Valley, the courses in mmerce and finance were likewise amplified in 1926, and the University's School Business Administration began.

In the same year, however, the old Mission Church was destroyed by fire. The sent structure, an enlarged replica of the original, was completed in 1928 and nsecrated by Archbishop John J. Mitty of San Francisco, October 9, 1936. It is fed with the original mission tiles and contains many statues and paintings brought the early Padres from old Mexico. Likewise, most of the interior decorations of church, especially the sanctuary ceiling, is a careful reproduction of that of the ginal Mission.

From the 1930's through World War II, the University's enrollment was relative small but stable. With the return of many war veterans, came an enlarged stude body, new resources and an expanded curricula that led Santa Clara into a new e of rapid growth and development.

From the post-war period until the present time, the face of the campus has bee changing and expanding. Eighteen new buildings costing approximately $15 millic have been added on the 67-acre campus. In 1961, the University announced a maj change in policy and accepted women students for the first time in its 110-year hi tory. Now fully coeducational, the undergraduate student body numbers 3,226 whic includes 1,152 women. Graduate programs in education, engineering, business, histor mathematics and English bring the total enrollment to 5,683.

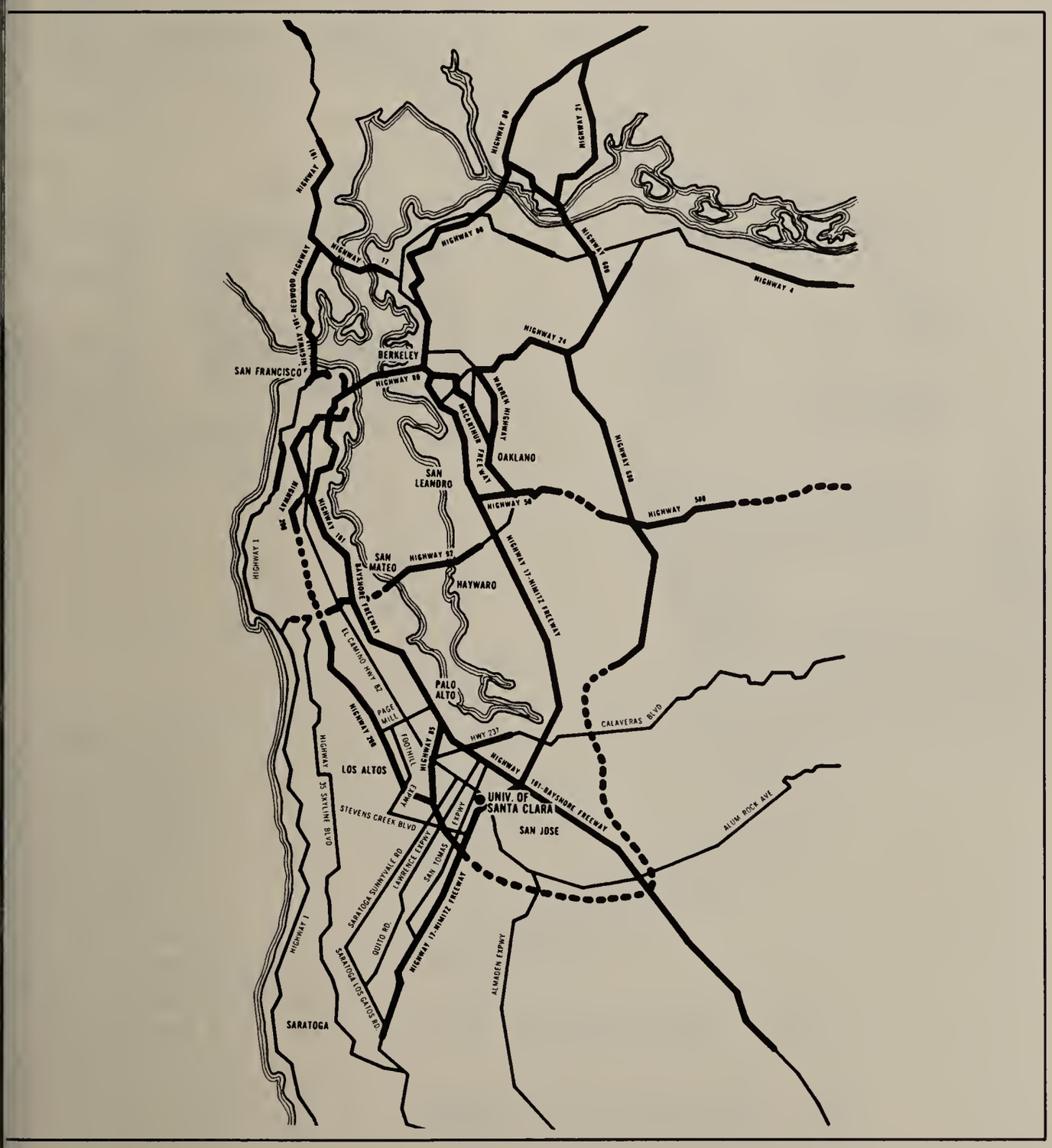
In 1964, the University announced a second major change: the adoption of a ne academic plan and calendar which divides the school year into three eleven-wee terms and limits the number of courses each student may take to three or four each quarter-period.

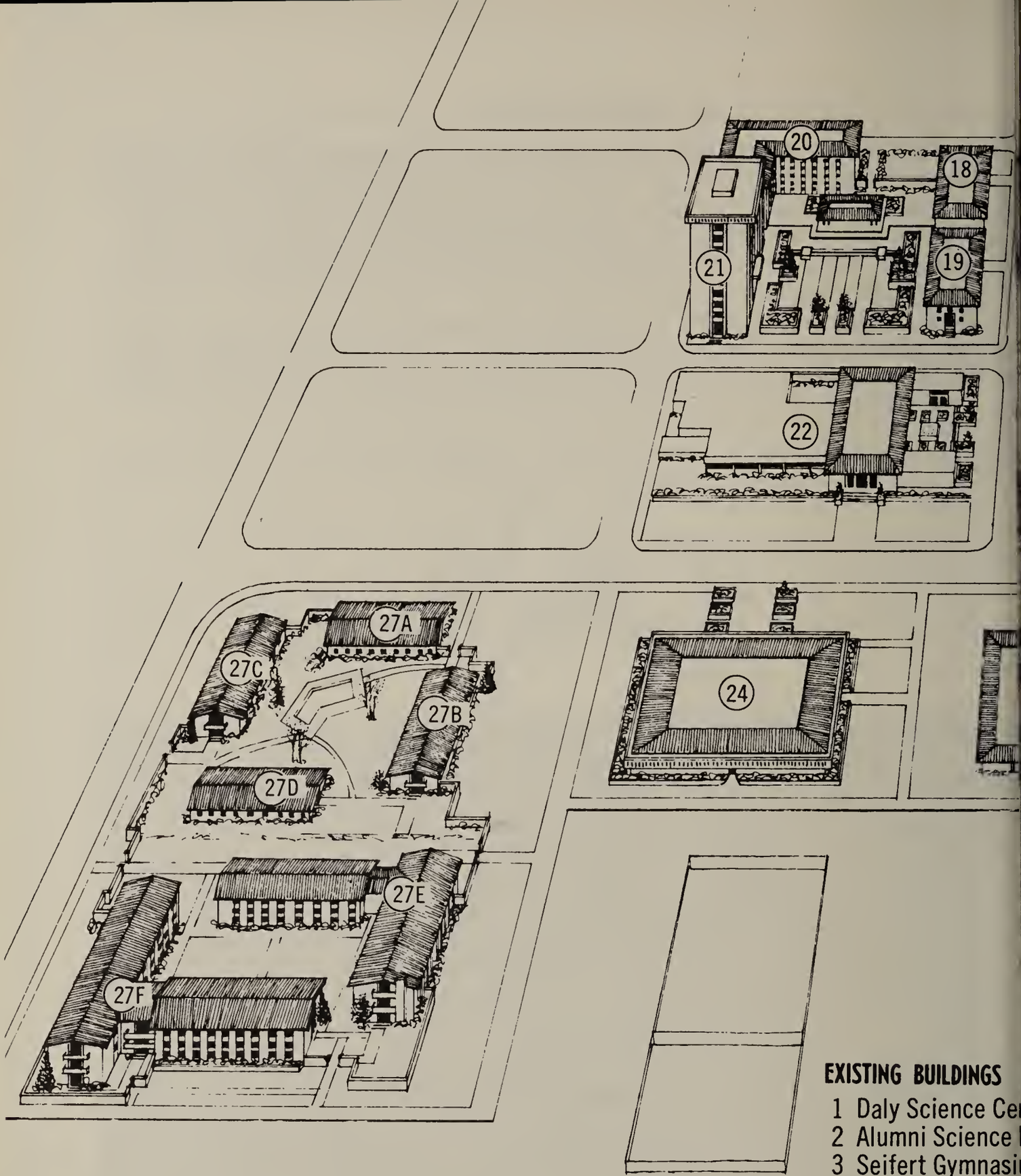
Today, the University of Santa Clara, the first institution to offer classes in high learning on the West Coast, continues its Mission heritage of service by assisting i students to equip themselves with the best of humanistic values and a wealth knowledge. Academic excellence in a well-balanced human being is the University goal.

LOCATION

The University of Santa Clara is 46 miles from San Francisco near the southern of the Bay. Railroad and bus and car transportation by freeway places the renowned tural and entertainment centers of San Francisco, Berkeley, Oakland and Marin unty within one hour's travel. In the opposite direction are the beaches of Santa uz, and less than two-hours drive from the campus is the world-famed Monterey hinsula and Carmel.

The University is accessible by all major railroads, by major airlines via San ncisco and Oakland International Airports, and by United Airlines, Pacific South-st Airlines, Air West and Air California at San Jose Municipal Airport—about three es from the campus.

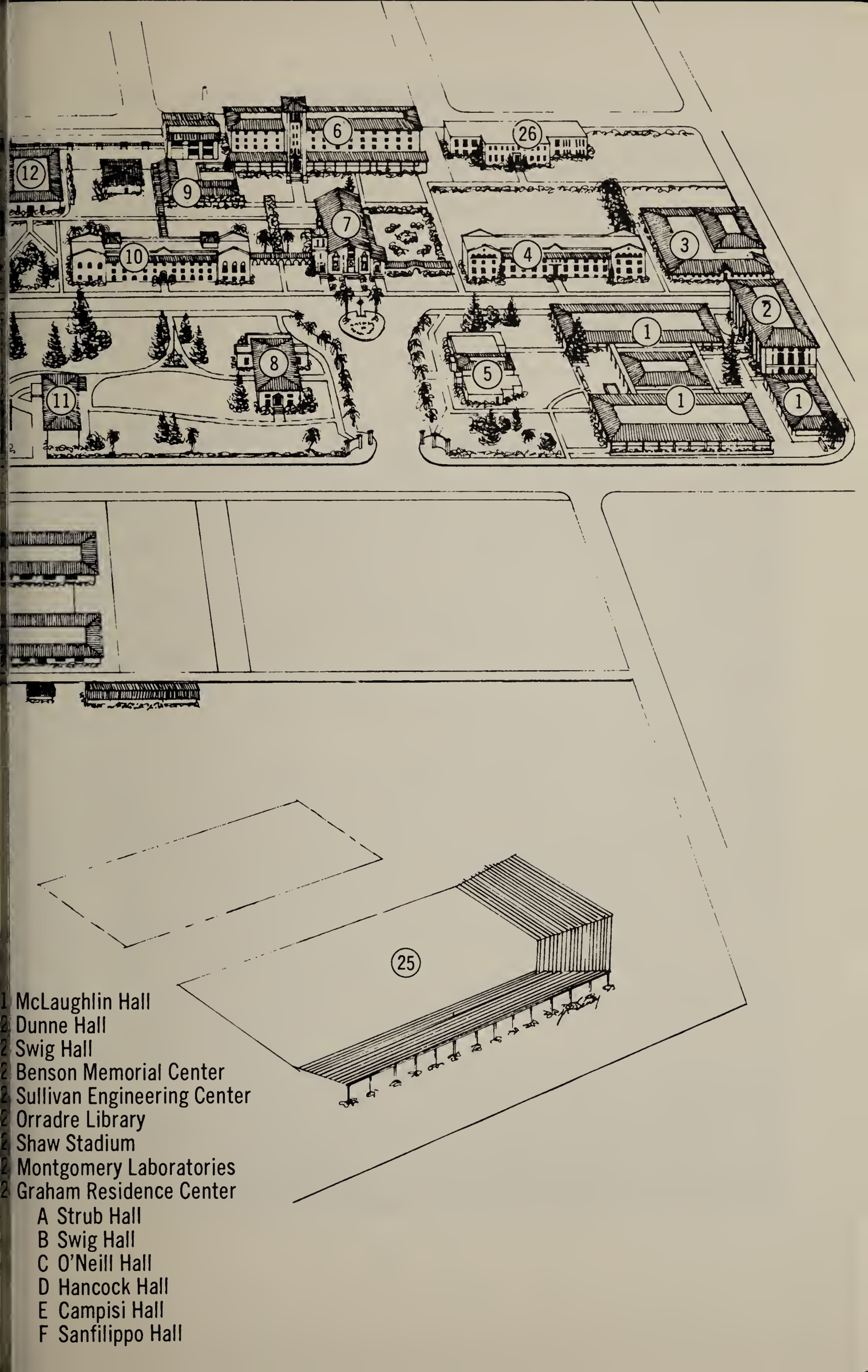




THE UNIVERSITY OF SANTA CLARA

EXISTING BUILDINGS

1 Daly Science Ce
2 Alumni Science
3 Seifert Gymnasi
4 O'Connor Hall
5 De Saisset Art G
6 Nobili Hall
7 Mission Church
8 Walsh Administr
9 Faculty Club
10 Jesuit Faculty Re
11 Heafey Law Libr
12 Varsi Hall
13 Service Building
14 Ricard Observat
15 Donohoe Infirma
16 Kenna Hall
17 Bergin Hall
18 Walsh Hall


1 McLaughlin Hall
2 Dunne Hall
2 Swig Hall
2 Benson Memorial Center
2 Sullivan Engineering Center
2 Orradre Library
2 Shaw Stadium
2 Montgomery Laboratories
2 Graham Residence Center
A Strub Hall
B Swig Hall
C O'Neill Hall
D Hancock Hall
E Campisi Hall
F Sanfilippo Hall

AIMS AND OBJECTIVES

The University of Santa Clara is an institution of higher learning founded by th Jesuit Fathers in 1851. The University is governed by a Board of Trustees of laymen and Jesuits.

Its principal objective is to provide superior undergraduate education in the libera arts, in the sciences and in the professions of business and engineering to a studen body of limited size and of high ability.

It also offers selected graduate programs in business, engineering, law and hu manities and sciences.

It presents programs in theology, scripture, and other religious studies which in clude the major religious traditions but with emphasis on the Catholic tradition.

It encourages research as an important part of graduate and undergraduat education.

It encourages experimentation and innovation in teaching methods and curriculun to make the education more relevant to contemporary society and the needs of moder man.

It welcomes professors and students of all races, religions, and national origins

It provides special assistance to disadvantaged students, not only to help solv social injustice, but also to diversify the student body in a way that will better prepar all the students to contribute to a pluralistic society.

Within this diversity it offers the opportunity for spiritual growth in private life an in the Christian community and worship which it fosters.

It is a scholarly community in which students, professors and administrator united in the search for truth, are actively involved in the formulation and implementa tion of institutional policy, and share responsibility for creating and maintaining a atmosphere in which all have freedom to learn, freedom to inquire and freedom t express themselves.

Santa Clara recognizes the importance of bringing to students, professors an the community at large, current and influential thought from the mainstream of con temporary life in philosophy, literature, science, the arts, politics, religion and othe cultural areas through public discussion, seminars, conferences and exhibitions. These will not necessarily reflect the University position, nor agree with majority opinion, an they will not constitute an endorsement since they may represent divergent views.

Board of Trustees
University of Santa Clara
November 19, 1968

THE COLLEGE OF HUMANITIES AND THE COLLEGE OF SCIENCES

In these two colleges are presented the liberal arts or humanities and the natural, social and life sciences. The purpose of the colleges is to assist students in developing their powers of creative imagination, critical judgment and effective expression. They aim also at developing such skills, conceptual frameworks and technical competences as will serve the students in directing personal growth to the service of others.

Because of the broadly conceived objectives of the College of Humanities and the College of Sciences all undergraduate students in the University are required to take a certain portion of their programs in these two colleges.

School of Business

The Schools of Business correlate the general education aims of the University with preparation in meeting the general and specific problems of industry.

The specific aims are to supply professional training for those who are aiming at responsible positions in corporations, in their own businesses, in professional organizations serving business, or in state and federal government agencies; and to provide graduate work at both the master and doctoral levels.

The Schools of Business are divided into three divisions:

a) Undergraduate, leading to the B.S.C. degree.
b) Graduate, leading to the M.B.A. and Ph.D. degrees.
c) The Management Leadership Center.

School of Engineering

" . . . it is a Catholic school, yet those of other faiths are admitted also, and heir religious opinions are not interfered with . . . to cultivate the heart . . . a care of morals, no less than intellectual improvement, are duties kept sacredly in view . . . " John Nobili, S.J., first President of the University of Santa Clara.

To these goals of fundamental knowledge—an inquiring mind, good habits of self-discipline, aptly expressed by Santa Clara's first president—the professional school adds the requirement of preparation to make a specific social contribution. Engineering knowledge was once passed from generation to generation in the familiar pattern of he apprenticeship. With the increasingly complex applications of science which provided the groundwork for the Industrial Revolution, those who were charged with applying science to the needs of the society in which they live—engineers—turned to the universities for increased formal preparation in science and mathematics. To accelerate he rate at which knowledge of contemporary engineering applications could be learned above that of the apprenticeship, schools of engineering developed—extending the curriculum beyond science and mathematics to include the methodology of engineering applications. Not only were the traditional goals of the University embraced, but o them were added specific professional needs—needs not only of the individual, but of the profession he represents.

The function of engineering is to bridge science and society; to modify nature to meet the needs of society within the restrictions dictated by social, political, and economical considerations.

In order to act as the bridge between science and society, the engineer must be both knowledgeable in science and sensitive to the means which can be used to satisfy social needs.

The rapid expansion of knowledge and complexity in all areas of science and engineering suggests the need to both broaden the educational program and to increase specialization. Both goals cannot be accomplished in four years. Because of he wide variety of engineering opportunities, and because so many graduates determine to go on for further study, the School of Engineering undergraduate curriculum minimizes specialization and combines it with general study in the humanities and the social and natural sciences.

Students who desire an even more liberalized approach to engineering education may elect the Bachelor of Science in Engineering degree program which permits additional courses in the life sciences, business administration, or the social sciences.

One-third of those students who earn Engineering degrees undertake graduate work in engineering. An additional group pursues graduate work in law, medicine, business administration, city and regional planning, and other areas where an undergraduate preparation combining science, applied science, and the liberal arts is desired.

The engineering activity requires all types of people with different interests, preparations, and abilities. Regardless of the field of engineering, there is a pattern of assignments describing the kinds of jobs in which engineers engage. These include:

Technical Management in which the engineer directs a team of engineers—technicians, mechanics, and other skilled artisans.

Consulting in which the engineer alone, or as part of a firm, offers his services to a client needing professional counsel.

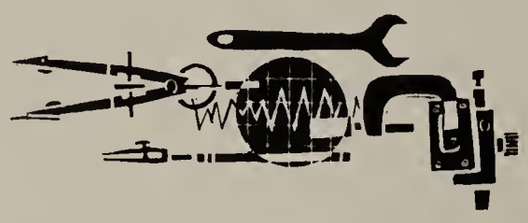
Design in which the engineer plans structures or systems, using his knowledge of scientific principles and the properties of materials.

Research and Development in which the engineer seeks additional knowledge about basic, physical phenomena and develops this knowledge into a product of service. In this assignment the engineer works closely with the scientist, and often their division of labor is difficult to identify.

Construction and Production in which the engineer translates the design engineer's drawings and specifications into structures, machines, or systems.

Teaching in engineering schools and colleges.

These are general assignments. Engineers also undertake assignments which require engineering background and experience, such as administration, management, and sales.



DIVISIONS OF THE UNIVERSITY AND CURRICULA

Santa Clara offers varied undergraduate and graduate curricula. In the undergraduate schools and colleges the programs are:

College of Humanities

Education, English, French, German, History, Italian, Philosophy, Religious Studies, Spanish, Speech and Theatre Arts. Honors in most of the preceding areas.

College of Sciences

Biology, Chemistry, Economics, Mathematics, Physics, Political Science, Psychology, Social Science, Sociology. Honors in several of these major fields.

School of Business

Accounting, Economics, Finance, Marketing, Management, and Quantitative Methods.

School of Engineering

Civil, Electrical and Mechanical Engineering and Applied Mathematics.

Graduate and professional programs are offered in the following schools:

Graduate School of Business

School of Engineering

Civil, Electrical and Mechanical Engineering and Applied Mathematics.

School of Law

College of Humanities

Education, English, History, Teacher Education.

Jesuit School of Theology at Berkeley

Affiliated and accredited with the University as its School of Theology. Registration is at present limited to members of the Society of Jesus in preparation for the priesthood.

MICHEL ORRADRE LIBRARY

In August, 1964, the holdings of the Varsi Library were transferred to the new and spacious Michel Orradre Library, named in honor of one of the principal donors, the Orradre family.

The new building, as completed to date, will hold 300,000 volumes and is designed to contain 600,000 volumes when further installations are made in the partially completed lower level.

The Library maintains an open shelf plan with special service areas grouped around the building's central core. The Library is an official depository for both California State and United States Governmental Documents.

The Library is open seven days a week for a total of 99 hours per week for the convenience and assistance of faculty, graduate and undergraduate students.

September, 1966, the holdings of the Michel Orradre Library in Biology, Chemistry and Physics were transferred to the new branch Science Library in the Edward Daly Science Center. Named after Mr. Frank Gentles, this collection will service the science departments in the immediate area for study and research.

STUDY ABROAD

Because of many cultural and academic advantages, Santa Clara students are encouraged to spend their junior year abroad. Through the University's affiliation with the Institute of European Studies, students may study at Durham, Freiburg, Madrid, Nantes, Paris, or Vienna. In addition, the University is affiliated with the Rome program of Loyola University of Chicago. Santa Clara students may also enroll in the Gonzaga University Center in Florence or the Ateneo de Manila. Santa Clara credit is given for work done at these centers. Demonstrated competence in the language of the country is required. To enroll in any of these programs, the approval of the Director of Studies Abroad is required.

SUMMER SESSION

The Colleges of Humanities and Sciences, in a single six-week session, offer day and evening classes for college credit. Men and women, lay and religious, are welcome in all departments. No transcript is required for admission. Courses are scheduled in art, business (undergraduate), economics, education, English, history, language, mathematics, music, philosophy, political science, psychology, sociology and theology. Graduate courses applicable to a master's degree are offered in education, English, and history.

Institutes and workshops of one, two and three weeks duration are presented in education, counseling, writing, political and social science. Special non-credit courses include data processing, rapid reading, study skills and introduction to law school.

Summer programs in the Far East and in Europe are also available.

Advanced placement for high school students permits high achievers who have finished the eleventh grade to enroll for university credit in freshman level courses and in intermediate languages. Recent graduates of high school are also eligible to enroll.

Board and room are available for men and women at reasonable rates in the University's attractive dormitory settings.

Evening courses in the Graduate School of Business and in the School of Law, as well as early-morning graduate courses in the School of Engineering, are separately administered. Information concerning these is obtainable from the appropriate schools.

EXTENSION DIVISION

Through the Extension Division the University makes its facilities available for the continuing education of the general community. Evening classes on the undergraduate level are offered in humanities and in business-related areas. Courses include art, teaching methods, literature, languages, history, mathematics, psychology, rapid reading, theology, data processing, personnel and business management, traffic and transportation.

Permanent records of Extension grades are kept in the Registrar's office.

WHERE TO WRITE

There is a central mail room on the campus to which all mail addressed to the University of Santa Clara, Santa Clara, California 95053, is delivered. It will expedite delivery on the campus to specify the following as indicated.

Correspondence relating to the general interest of the University:
Very Reverend Father President

Communications regarding curriculum, scholastic problems, degree problems:
The Dean of the particular school or the Academic Vice President

Admission Blanks and Entrance Requirements:
Director of Admissions

Alumni Affairs:
Executive Director, University of Santa Clara Alumni Association

Athletic Program:
Director of Athletics

Diplomas and Graduation:
Registrar

Extension and Summer Sessions:
Director of Continuing Education

Foreign Students:
Director of Admissions

Gifts, Grants and Bequests:
Vice President for Development and Public Relations

Graduate Study:
The Dean of the particular school or college

Honors Program:
Chairman, Honors Committee

Jesuit Community:
Very Reverend Father Rector

Personal Welfare and Health of Students:
Dean of Students

Placement:
Placement Office

Publicity:
News Director

Readmissions:
Registrar

Residence Accommodations and Student Housing:
Director of Housing

Scholarships:
Office of Financial Aids

Student Loans:
Office of Financial Aids

Teacher Certification and Placement:
Director of Teacher Education

Transcripts, Student Records:
Registrar

Tuition, Payment of Bills, Refunds:
Controller

Student Life

Membership in groups and participation in extracurricular life are encouraged as such activity can be a valuable adjunct to the education of the Santa Clara man or woman. Although freshmen should limit their activities somewhat, they will readily find clubs whose purposes will correspond to their interests.

The Associated Students plan and administer an extensive social program which ranges from class- and group-sponsored picnics to more formal dances in prominent hotels in the San Francisco Bay Area. The University's proximity to San Francisco also allows it to bring the more famous personalities in the intellectual, cultural, and entertainment world to its campus.

Each sudent will find that the personal touch is very much a part of the Santa Clara tradition. Freshman Week is planned with the idea of familiarizing new students with the various phases of campus life. A large representation of upperclassmen will be on hand to meet with new students and to assist with the problems particular to incoming students. Special counseling and orientation plans for upperclass transfer students take place prior to registration. The Fall Homecoming Weekend, scheduled for early November, is not only a highlight of the social calendar but also serves as an excellent way for students to become acquainted with each other and with the alumni.

The personal approach does not end with Freshman Week, nor is it restricted to student relationships. Faculty seminars in dormitory lounges and informal get-togethers provide a relaxing medium for discussion and enjoyment.

The University feels that an active cultural and social program is an essential part of the educative process. Accordingly, the Student Senate and various organizations under the supervision of the Dean of Students, execute an extensive and varied activities program.

The major intercollegiate sports are football, baseball, and basketball; other sports are tennis, water polo, golf, soccer, swimming, and rugby. A full complement of intramural athletics are available for any student who wishes to participate.

The University maintains a program of recreational activities for women, under a Director of Women's Recreation. Golf, tennis, swimming, water-safety and life saving bowling, and many other active sports are included. Participation is open to all students according to interests and time limitations.

Although Santa Clara has grown rapidly in the last few years, it retains a friendly atmosphere and a personal relationship environment for which it is famous. This is a vital part of student life and an essential part of the University's particular kind of education.

STUDENT CONDUCT

The problem of conduct is a serious charge on the institution which both respects uman rights and accepts the responsibility for guiding students to maturity. Many tudents are away from home for the first time in their lives; others are finding new orizons opening to them as their educational experiences broaden.

Since the University of Santa Clara believes in the dignity and importance of each erson entrusted to its care, it accepts the responsibiliy of directing varied abilities nd goals, guiding different personalities and interests, and understanding, and somemes sharing, myriad student problems. The rules and regulations of the University re a means to an end and aid in the development of the student; they are not designed olely to restrict him.

STUDENT HOUSING

The University maintains 12 dormitories for men and women. They provide as omelike an atmosphere as possible within the framework of the University's educaonal requirements. Three swimming pools are available. Upper-classmen are enouraged to select their roommates, that as much as possible personal preferences ay be served. This privilege is not accorded freshmen.

Acceptance to the University as an undergraduate automatically includes acceptance in a residence hall. Freshman and sophomore undergraduate students who do ot live with parents or other adult members of their families must live on campus. ousing deposit should be submitted as soon as acceptance notification has been eceived.

Room assignments are made by the Director of Housing, but not until the housing eposit is received. No single rooms are available. Freshmen will receive room assignents by mail in August. Sophomores, juniors, and seniors may request a specific hall nd/or roommate, if they wish. These applications must be in writing and be received efore July 15. Anyone who wishes a nonsmoker for a roommate should make this equest to the Director of Housing before July 15.

Rooms are provided with beds, pillows, mattresses, towel racks, bookcases, chairs, esks, chests of drawers, medicine chests. (A charge will be made for damage to rooms r furniture.)

Students must provide blankets, sheets, towels, pillowcases, washclothes, bedpreads, desk lamps.

Helpful extras could include a typewriter, an alarm clock, ash trays, a mending it, and closet accessories.

Special service rooms are conveniently located in each building, with proper utlets for electric irons, hot plates, heaters, sun lamps, hair dryers, and such apliances, which are not permitted in the rooms. There is a linen rental, laundry and ry-cleaning service available on campus for the convenience of students. Television ets for student use are in various locations on campus.

STUDENT GOVERNMENT

The system of student government at Santa Clara makes the students themselve responsible for the conduct of student affairs.

Students organize and supervise academic, cultural, and social activities throug class government, clubs, and committees. In the Student Senate, the students establis the rules and regulations and sanctions governing student activity in the residence hall at athletic and social events, and at extracurricular events on campus. In the Board Student Appeals representatives of the students, faculty, and administration hear case involving major violations of regulations and determine what sanctions are to be applie

Law students have their own Student Bar Association as the instrument of stude government in the School of Law. Therefore, law students are not represented in th Student Senate and are not subject to the jurisdiction of the Student Senate an the Student Court.

Student government at Santa Clara plays a vital role in the education of the stu dents. As a genuine government of the students by the students, it develops respons bility and integrity in individual students.

Associated Students

The Associated Students of the University of Santa Clara (ASUSC) is the studer body organized for the conduct of student government. All fee-paying registered stu dents are members.

The purposes of the ASUSC are to further the best interests of the University an its students, to encourage student activities, and to provide valuable experience an training in self-government and responsibility.

COUNSELING SERVICES

A variety of counseling services are conveniently available to all students. Th University Chaplain and his assistant provide religious guidance in personal interview and during the University retreats. The deans of the Colleges and Schools and th professors of the student's major department usually take care of the academic counsel ing of the students.

The University Counseling is complementary to, and supportive of, the total uni versity counseling, guidance, and advisement effort. A professional staff of psycholo gists and guidance specialists is available to aid the students in dealing with academic occupational planning, and personal-social problems which may confront them a maturing men and women. Counseling and testing procedures are used that are ap propriate to the student's needs. The fundamental objective of these services is t enable the student to use his own resources in dealing with the problems he confronts

PLACEMENT BUREAU

The Placement Bureau, in Benson Memorial Center, serves as a clearinghouse of ormation for seniors and maintains schedules of visits by business and governmental ployment representatives. The schedules are distributed to all seniors, and a wide ıge of literature on career and job opportunities is available in the Placement Bureau graduating students.

The Placement Bureau also assists students who wish to apply for part-time work ring the school year and for vacation jobs. Students who desire such work during school year should file their applications and qualifications at registration time.

STUDENT HEALTH SERVICE

The Student Health Service is located in the Donohoe Infirmary on the campus d is under the supervision of the University Director of Medical Services.

All full-time undergraduate students and full-time law students are eligible for edical care under the folowing conditions:

1. The Student Health Service has a physician in attendance from 8 a.m. to Noon, Monday through Friday, while classes are in session. Visits to the Student Health Service during these hours should be made by calling the infirmary for an appointment. At all other times while the University is in session, medical care is available in cases of bona fide emergencies. The Student Health Service may be contacted through the Infirmary or the University switchboard operator. With the exception of drugs, laboratory work and X-ray, no fee is charged to students utilizing the service.
2. Drug prescriptions may be filled at the University-designated pharmacy; the student will be billed for such prescriptions by the University. Prescriptions may, of course, be filled at any pharmacy, but in that case, it is the student's responsibility to make financial arrangements with the druggist of his choice for payment of the prescription.
3. X-rays, laboratory work, general hospital charges, consultations by physicians other than the University physicians and medical care rendered at a general hospital (with the exception of emergency room visits by one of the University physicians) will be charged to the student.
4. In-patient care is available to undergraduate resident students only, at no charge.
5. All students, of course, have the right to obtain medical care outside of the services offered by the Student Health Service, but in that case, the financial obligation for such care is the responsibility of that student.

All students are required to have a pre-entrance health examination by their per-nal physician. The results of such an examination are to be reported to the Student ealth Service on the form designated by the University on or before the date of gistration.

ATHLETICS

The University of Santa Clara maintains a well-balanced program of intercollegi and intramural athletics for the benefit of the student body. All these activities a designed to supplement the traditional academic curriculum. Intercollegiate compe tion is conducted in football, basketball, baseball, tennis, water polo, golf, socc swimming and rugby against opponents of recognized national standing. The Univ sity is a member of the National Collegiate Athletic Association and the West Co Athletic Conference.

A full program of intramural athletics in which all students are encouraged participate is conducted under the direction of the Director of Intramural Sports.

Facilities for the athletic activities of the student body include the gymnasium w its basketball and weight rooms and swimming pool; centrally located tennis cou and extensive athletic fields for football, baseball, softball, track, rugby and socc

Athletic Officers

Charles F. Guenther, S.J., M.A. ..... Chairman, Advisory Council
Patrick Carroll, S.J. ..... Faculty Advisor
Jerald G. McGrath, B.A. ..... Faculty Representative
George P. Malley, B.S. ..... Director of Athletics and Footb
Carroll Williams, M.S. ..... Basketball
Salvador F. Taormina ..... Baseball

Staff Members

William McPherson, B.S.
John Pasco, L.L.B.
Andrew Locatelli, M.S.
William Radley, B.A.
Raymond Anderson, B.A.
William Augenstein, B.S.
Edward Roth
Edward Pugh
Henry Schmidt, B.S.
Richard W. Degnon, B.
S. M. Sanfilippo, B.A.
Kathryn B. Ivers

RELIGIOUS ORGANIZATIONS

The first thought of the University is the encouragement of a sound religious life ' the men and women of the student body. Spiritual activities include The Confra- 'nity of Christian Doctrine, The Christian Life Community, The Lambdas (Liturgical 'oup), The Chaplain's Retreat Organization, and the Sanctuary Society.

STUDENT ORGANIZATIONS

There are a number of national and departmental organizations on campus to ıich students may belong. These organizations generally fall into two categories: ɔse that recognize achievement of individual students in their chosen academic fields d those special interest organizations which permit individual students an opportunity meet with others having the same interests.

The University of Santa Clara does not recognize national social fraternities or rorities.

A complete listing of student organizations is given in the *Student Handbook,* ailable each year to all members of the student body.

GENERAL ACHIEVEMENT AWARDS

Nobili Medal: An annual prize of a gold medal founded by Joseph A. Donohoe, in ınor of the first President of Santa Clara, the Rev. John Nobili, S.J., to be awarded to ɜ male student who shall be judged outstanding in personal conduct, activities, and ademic excellence.

Saint Clare Medal: An annual prize of a gold medal, established by the University Santa Clara, to be awarded to the woman student judged outstanding in personal ınduct, activities and academic excellence.

COLLEGE PRIZES

Business Administration Prize: An engraved key given by the Business Administra- ın Association to the senior in the School of Business who shall have made the eatest contribution to the School of Business.

Delta Sigma Pi Key: An engraved key given by the Delta Sigma Pi to the senior in e School of Business with the highest scholastic average.

The Isabel Jones Prize: An annual prize donated in memory of Mrs. Isabel Jones ' her husband, Dr. Eliot Jones, to be given to the senior student of the School of Busi- ıss who is judged by the Faculty of that School to be outstanding in scholarship.

The Charles J. Dirksen Prize: An annual prize donated by Dr. Eliot Jones in honor Dean Charles J. Dirksen to be given to the junior student in the School of Business ıo is judged by the Faculty of that School to be outstanding in scholarship.

The Orella Prize: An annual award established in 1915 by the late Dr. Firmin R. 'ella, B.S. '89, and funded in 1945 by his wife, Albertine S. Orella, to be given to e senior student in the departments of science who attains the highest average in ientific subjects during the junior and senior years.

The Schwartz Prize: Two annual prizes, donated in 1955 by Dr. Sidney L. Schwartz San Francisco, to be given to students submitting papers in Finance and Business Economics which shall be judged outstanding by the Faculty of the School of ısiness.

Freshman Mathematics Prize: An annual award of books to a freshman student lected by the Mathematics Faculty for excellence in mathematical study and achieve- ɜnt during his freshman year.

DEPARTMENTAL PRIZES

The Religious Studies Prize: A prize given by the President of the Universi, awarded annually to an upper-division student, for proficiency in religious stud selected on conditions set down by the Department of Religious Studies.

Santa Barbara Medals: Four gold medals, given by the President of the Universi, to be awarded annually, on the recommendation of the Professor of Military Scienc to the outstanding cadet in each of the four years of training.

The Sourisseau Prize: An annual prize founded in 1955 by Miss Eva Sourisse of San Jose, in honor of her parents and family, to be given to the senior student the University who shall be selected by the Department of Philosophy for outstandi philosophical achievement.

The Michael Shallo Prize in Political Science: An annual prize founded in 1955 the University, in honor of Father Michael Shallo, S.J., Professor of Political Philosoph to be given to the student of the University selected by competition as the most pr ficient in political science.

The Civic Club Italian Prizes: Three prizes contributed in 1949 and thereafter the Civic Club of San Jose, to encourage the study of Italian language and culture, be given to the students attaining the three successively highest grades in the stu of Italian.

The Medal of the Association of the Army of the United States: Awarded to the ou standing cadet of the first year of the Advanced Curriculum of ROTC, for exceptiona meritorious academic attainments, exemplary conduct, efficiency, and fidelity.

Department of the Army Superior Cadet Ribbon Award: Four ribbons award annually by the Department of the Army to the outstanding cadet in each academ class of Senior Division ROTC program at the University who has consistently demo strated potential qualities as an officer.

The Ryland-Owl Prizes: The Hon. Caius T. Ryland founded in 1897 an annual pur leaving its disposition to the discretion of the Faculty. This the Faculty, after due co sideration, assigned to the University Literary Congress, organized February 22, 185 establishing the Ryland Debate to be held yearly between the two branches, the Sena and the House, and divided the purse into three prizes. The directors of the Colle Magazine, "The Owl," founded an annual prize to be given to the winner of an orato cal contest in the University. Since the oratorical contest is no longer held, the pri formerly awarded for the competition is now added to Ryland Debate prizes.

The William H. Leahy Prize: This prize was founded in honor of Mr. William Leal by his wife and his brother, Mr. James Leahy, for the winner of the Dramatic A Contest.

The Handlery Prize: An annual prize founded by Mrs. Rose Handlery, in memo of her son, Raymond, of the class of 1934, to be given to the senior student of th University who will have contributed most to the success of any of the University st dent publications.

The McCann Prize: Annual prize founded in honor of Daniel M. McCann, B.S., '8 to be given for the best short story.

The Redwood Prize: Annual prize founded in 1908 by the executive committee "The Redwood," and given for the best essay on an historical subject.

The Shipsey Poetry Prize: An annual prize founded in 1954 by Richard M. Schmic in honor of the late Reverend Edward Shipsey, S.J., to be presented to the stude selected by the Faculty of the Department of English for the most outstanding contrib tion in the art of poetry.

Admissions Information

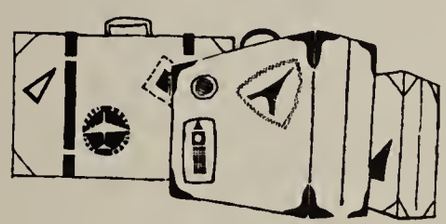
RECOMMENDED COURSES

The following high school courses are recommended for a student applying for mission to the University as a freshman:

	NUMBER OF UNITS		
urse	*Humanities Majors*	*Business & Social Science Majors*	*Natural Science, Mathematics and Engineering Majors*
gebra	1	2	2
glish	3	3	3
story	1	1	1
e foreign language	2	2	2
ane geometry	1	1	1
b science (upper division)	1	1	2*
igonometry			½
tional†	7	6	4½

*Physics and Chemistry are required lab science for Natural Science and Engineering Majors.

†Optional courses must be in advanced foreign languages, mathematics, laboratory science, or other solid college-preparatory courses.



CRITERIA FOR ADMISSION

The University makes selective and individual decisions on the applicants for dmission. Freshmen applicants are offered admission, based on the following criteria n order of importance): first, secondary school record; second, scores on College ntrance Examination Board tests; third, school recommendation; fourth, personal ctors such as extracurricular involvement, character, leadership; fifth, relationship to e University. It should be unnecessary to state that the University welcomes students all ethnic and religious backgrounds.

ADMISSION PROCEDURE

The prospective freshman student should:

1. File his application and service fee of $20.00 with the Admissions Office, U versity of Santa Clara (application forms may be obtained from that office).
2. Submit a recommendation from his school, evaluating scholastic ability a character, to the Admissions Office (recommendation form is provided w application).
3. Request his high school to send a transcript of work, after 3½ years of hi school (spring semester of the senior year) to the University of Santa Clara.
4. Take the Scholastic Aptitude Test and the English Composition Achieveme Test of the College Entrance Examination Board in January of the senior ye or earlier, and request that scores be sent to the University. For information dates and places of these tests write to the College Entrance Examinati Board, Box 1025, Berkeley, California 94701, or Box 592, Princeton, New Jers 08540.

   Note: In addition to the SAT and English Achievement, students applying f Chemistry, Physics, Mathematics and Engineering must take achievement tes in Mathematics (Level I or II), and one of the following: Chemistry, Physic Social Science.
5. Make certain all the above are completed, and the required materials are su mitted to the Admissions Office by March 1. Full consideration cannot b assured for applications received after the date.

Sixth-Semester Decision

Students who have earned a 3.5 grade average (4.0 being straight A) in the fir three years of high school work may seek an admissions decision after their six semester. Their application should be clearly identified. Transcripts reflecting six s mesters of work and recommendation forms should be sent by the high school. Th decision concerning admission will be rendered promptly. It is requested that ear decision applicants submit College Board scores during the junior year or in th summer before the senior year. Students notified of acceptance after six semesters high school work will not have to make the normal admission deposit until May 1 their eighth semester, since it is assumed that a student applying under this speci category will, if accepted, enter the University.

Advanced Placement

Advanced placement and College credit may be obtained through the Colleg Board Advanced Placement Program. The student will be notified of the placeme and credit the University will grant after scores are received.

Admission of Foreign Students

Candidates for admission who come from foreign countries must present a sco in the Test of English as a Foreign Language, which is administered by the Education Testing Service. Foreign students, both freshmen and advanced standing applicant must also take the Scholastic Aptitude Test of the College Entrance Examination Boar In order to be issued Immigration Form I-20, applicant must be accepted as a full tim student working toward a degree.

ADMISSION TO ADVANCED STANDING (TRANSFERS)

General University

The University accepts a number of transfer students, principally at the sophomore nd junior levels, each year.

Since applications greatly exceed the number of such students who can be accom-ıodated, and are increasing each year, no specific statement can be made about the uality of work (g.p.a.) which will enable a transfer applicant to be accepted. Only :udents in good standing at the last college attended will be considered. No student n academic or disciplinary probation, or suspension, will be considered for admission.

There is no minimum number of units required for transfer admission. An exception › this is the student who was not acceptable as a freshman. Such a student cannot be onsidered until he or she has completed at least 45 quarter units or 30 semester units f college work. In general, a student is classified by the number of units applicable to is degree program.

The Scholastic Aptitude Test of the College Entrance Examination Board is re-uired of all transfer applicants.

Transfer students may apply for admission for Fall, Winter and Spring quarters. ›eadlines for applications to those terms are, respectively, August 1, December 1, Aarch 1.

Transfer credit is fixed by the Deans of the College following the student's acceptance, and submission of registration deposit. No evaluation can be made before that ime. The following general statements apply to transfer credit:

a. Courses from accredited four year institutions are generally acceptable if similar to courses listed in the *University of Santa Clara Bulletin*. Courses from accredited two year institutions are generally transferable under the same conditions, if (in California community colleges), they are designated as University transferable.
b. Courses of a technical or trade nature do not transfer.
c. Courses from non-accredited institutions, trade schools, extension or correspondence programs do not transfer.

School of Business

Students who transfer to the School of Business from other universities and junior :olleges must complete, during their first two years of higher education a minimum of 60 semester or 90 quarter units in order to be given junior status. Included in these ınits must be six semester or nine quarter units of Principles of Accounting, six semester or nine quarter units of Principles of Economics, and six semester or nine quarter units of mathematics.

School of Engineering

Admission to advanced standing is by specific action of the Committee on Academic Standing, which will evaluate all credits presented and determine the rating of he candidate.

The student normally will be admitted to advanced standing if he has completed during his first two years, a minimum of 60 semester, or 90 quarter units. Included in he units must be 12 semester or 18 quarter hours of Analytical Geometry and Calculus, 6 semester or 9 quarter hours of Chemistry or Biology, and 10 semester or 15 quarter ıours of Physics for Engineering and Science students.

Financial Information

STUDENT EXPENSES

1970-71

Application Fee ..... **$ 20.0**

This charge is to be sent with each application form and is not refundable.

Deposits:

All new students or students reapplying for admission **$100.0**

This amount is automatically credited to the student's account at registratio or at the time of full-tuition payment. This deposit is not refundable.

All returning undergraduate students must make the deposits indicated below b *May 31st.*

A deposit of $100.00 is required for all returning *boarding students* . . **$100.0**

A deposit of $50.00 is required of all returning *day students* ..... **$ 50.0**

These deposits are not refundable after *June 30th.* Transfer from boarding t day student status after this date will result in forfeiture of $50.00 of the deposi

Tuition per Quarter **$616.0**

Part-Time Student Tuition, 1 course **$245.0**

2 courses **$440.0**

Room and Board per Quarter* **$365.0**

Tuition, Room and Board are due and payable in full on the day of registration.

Fee for each change in scheduled course ..... **$ 2.0**

Fee for challenging a course (per course) ..... **$ 10.0**

Late Registration Fee ..... **$ 20.0**

Late submission of Form Fee (administrative forms, e.g. pre-registration, application for degrees, etc.—per day) ..... **$ 2.0**

Fee for Replacement of Identification Card ..... **$ 2.0**

Breakage deposit for Chemistry Courses with laboratory, depending on course ..... **$5.00-$20.0**

(Unused amount returned to student at close of course.)

Additional copies of student's transcript of grades (each copy of transcript) . . . **$ 1.5**

Graduation Fee ..... **$ 25.0**

For Graduate Business, Engineering, Humanities, Law, and Summer Session, tuitior and fees—see announcements of the various Graduate programs and Summe Session.

Charges for loss or damage in residence halls or to special equipment will be billec directly to the student and parents upon report of damage or loss.

Special Information: A full-time student who drops courses during the term will be considered full time for the balance of that term for tuition purposes.

Part-Time Students:

A Part-Time Student is defined as a Lower Division Student taking less than three (3) term courses, or an Upper-Division Student taking less than two (2) term courses.

*Room and Board charges during winter and spring recess: By arrangement with the Director of Housing.

METHOD OF PAYMENT

Students should come prepared to pay all charges on the day of registration, or hould have payments from home in the mail to reach the University at least TWO /EEKS prior to the date of registration.

Remittances should be made payable to the "University of Santa Clara" and ıailed to the Business Office.

Students who have unpaid bills at the University or who defer payment without pproval are subject to dismissal from the University and, as long as such payments emain unpaid, may not receive transcripts of credit nor any diploma.

For those who are not financially able to pay the full term charges in advance, ıere are several tuition plans administered by outside financing agencies which are vailable. Those who plan to avail themselves of one of these services should request ıformation from the University at least three months prior to registration.

In addition, the University has several loan funds which are available to students nd their parents.

REFUND OF TUITION: FULL-TIME STUDENTS

Students who withdraw from the University may receive refunds of tuition accordıg to the following schedule:

For withdrawal prior to the first Monday after registration:
payment refunded *minus* **$135.00**
For withdrawal prior to the second Monday after registration:
payment refunded *minus* **$180.00**
For withdrawal prior to the fourth Monday after registration:
payment refunded *minus* **$260.00**

No further refunds of tuition will be allowed.

REFUND OF TUITION: PART-TIME STUDENTS

Students who withdraw from the University may receive refunds of tuition accordıg to the following schedule, per course:

For withdrawal prior to the first Monday after registration:
payment refunded *minus* ..... **$ 75.00**
For withdrawal prior to the second Monday after registration:
payment refunded *minus* ..... **$ 90.00**
For withdrawal prior to the fourth Monday after registration:
payment refunded *minus* **$125.00**

No further refunds of tuition will be allowed.

REFUND OF ROOM AND BOARD

Refund of unused board will be prorated from the Monday following the date of vithdrawal.

No refund will be made of the payment for a room in the University's residence ıalls.

Refunds cannot be processed until one month after the student's withdrawal.

The above fees and charges are subject to change without notice.

FINANCIAL AID

To assist deserving students in continuing their education, the University of Santa Clara maintains a broadly-based financial aids program of scholarships, loans, grants and part-time employment. Administered by the Office of Financial Aids, these resources help bridge the gap between the cost of education and what parents and students can reasonably contribute.

The College Scholarship Service, of which the University of Santa Clara is a member, cooperates in this task by estimating the financial need of each student from information supplied on the Parents' Confidential Statement. On the basis of this recommendation and subject to the availability of funds, the Office of Financial Aids is then able to prepare a "package" of aids for which the student qualifies. This could include a scholarship, loan, grant or part-time employment under the work-study program or any combination of the four.

The cost of a college education today is expensive, but not prohibitive. A family, therefore, is expected to make a maximum effort to assist the student with college expenses. Financial help from the University and from other sources should be viewed only as supplementary to the efforts of the family.

The Office of Financial Aids maintains a staff of counselors who are most willing to talk with prospective students and their families regarding the financing of their education. These people will provide assistance to both parents and students in the burdensome and sometimes confusing process of financing a college education.

More complete information about the University of Santa Clara Financial Aids program is available in the *Financial Aids Bulletin*, published by the Office of Financial Aids.

Scholarships

Undergraduate — Entering students

Scholarships vary in amount and are renewable provided the student fulfills the University's requirements and files for renewal each year. The stipend may be adjusted if the applicant's financial circumstances change substantially.

To qualify for scholarship consideration, a student must:

1. Secure a copy of the Parents' Confidential Statement form (a questionnaire on finances) provided by the College Scholarship Service, have it completed and forwarded to the Service not later than February 15, requesting that a copy be sent to Santa Clara. (No other application for scholarship assistance is required.)
2. Arrange to take the Scholastic Aptitude Test of the College Entrance Examination Board, in November, December, or January. (California residents must take the test in November or December to qualify for a California State Scholarship.)

California residents must apply for California State Scholarships if they intend to seek assistance from Santa Clara.

All scholarship applicants will be notified of the disposition of their requests. Notification of scholarship awards will be made no later than May 1.

Undergraduate — Present Students

California residents must apply for California State Scholarships if they intend to seek assistance from Santa Clara.

Petitions for new scholarships by students already in attendance at the University must be submitted before January 15 to the Director of Financial Aids. The necessary forms for this purpose are available in the Office of Financial Aids.

ndergraduate — Transfer Students

Students who are presently enrolled in an institution of higher learning who plan transfer to Santa Clara and who wish to apply for scholarship assistance should rite to the Office of Financial Aids.

Scholarship Qualifications

Besides the conditions laid down by the donors, all scholarships administered by e University are subject to the following conditions:

1. In selecting students for scholarship benefits, evidence of financial need is required. From the applications which satisfy this requirement, preference will be given to students with higher scholastic attainments.
2. A student who holds a scholarship must file a petition for renewal each year. Petitions for new or renewed scholarships by students already in attendance at the University must be submitted before January 15.
3. Scholarships may be cancelled at any time for serious infractions of the rules and regulations of the University.
4. As a general rule, undergraduate applicants receive priority considerations for the different financial aids for which both graduate and undergraduate students are eligible to apply.

Loans

Because scholarships and grants are limited, many students applying for aid find e most advantageous method of financing their education through a loan program. mong those available to students are the National Defense Student Loan program and ederally Insured Loans. Application forms and further information may be obtained om the Office of Financial Aids.

Deferred Payment Plans

Santa Clara provides a deferred payment plan which is administered through outde agencies. One-, two-, three-, and four-year contracts are available.

Jobs

Employment during the school year is not encouraged, and students will not be ermitted employment which intrudes on their required study hours; however, Santa lara realizes that it is necessary in some cases for students to hold part-time jobs. The niversity maintains a Placement Bureau on campus to assist students in securing art-time work.

Students who receive financial aid are expected to work during summer vacation. rom their summer earnings men are expected to contribute at last $400, women $300, meeting their costs at Santa Clara.

STORAGE OF PERSONAL PROPERTY

The University of Santa Clara is not responsible for personal property located on ampus.

With the exception of losses from fire, any loss from dishonesty, destruction or isappearance is strictly a personal matter. It is the individual's responsibility to secure s or her own insurance coverage.

Academic Regulations

COURSE REQUIREMENTS

The undergraduate program is scheduled on a basis of three eleven-week terms per academic year of nine months. The eleventh week will be devoted to examinations. During the freshman and sophomore years the student schedules three or four courses per term and during his junior and senior years, he schedules three courses per term. Twenty-two courses in the first two years and eighteen in the second two years are the minimum course requirements for a bachelor's degree in all schools and colleges of the University.

Classes are normally scheduled on Monday, Tuesday, Thursday, and Friday. The Santa Clara plan of academic performance envisions considerable independent study by the students. Wednesday will be kept free of laboratories, examinations, and seminars, to provide uninterrupted study periods. No student activities will be scheduled prior to 3 p.m. on Wednesday, except drill at 9 a.m. for the Department of Military Science.

No lower division student may carry less than three courses per term without the approval of his Dean. No lower division student may carry more than four courses per term. No upper division student may carry less than two term courses without the approval of his Dean. No upper division student may carry more than three term courses, except under the following conditions:

1. He must have a 3.3 G.P.A.
2. He must have a letter from the Dean permitting him to do this.

Juniors and seniors may, with authorization, take a fourth course in any term on a pass-fail basis. The grade of C or above is passing and D or F is failing. Such courses do not fulfill graduation requirements.

Any upper division student who takes a fourth course without authorization will be denied credit for it.

A sophomore may take an upper division course if approved by his Dean and provided his program does not exceed four courses.

To relate the term courses system to other systems of credit, lower division courses are considered equivalent to a four-quarter-unit course, and courses taken in the upper division are equivalent to a five-quarter-unit course.

A part-time student is defined as a lower-division student taking less than three term courses, and an upper-division student enrolling in fewer than two term courses. A full-time student who drops courses during a term will be considered full-time for the balance of that term for tuition purposes.

MARKING SYSTEM

A student's grade of scholarship is given according to the following marks:

A	Excellent	D	Inferior
B	Good	F	Failure
C+	Above Average	I	Incomplete
C	Satisfactory	W	Withdrawal

A student must earn a C average in all work undertaken and, in addition a C erage in the courses of his major in order to qualify for the Bachelor's degree. To termine a numerical average, 4 grade points are assigned for each A, 3 for a B, 2.5 · a C+, 2 for a C, 1 for a D, and 0 for an F. To arrive at the grade-point average, e total earned grade points are divided by the number of courses which have been dertaken. A C average is 2.0.

REPETITION OF COURSES

A student may, with permission, repeat a course in which a grade of D or F was ceived on the first attempt. He should use the letter R in registering for the course ain. All grades, whether repeated or not, will be used in computing the student's rformance.

WITHDRAWING FROM COURSES

Students may withdraw from courses without penalty within one week following tification of midterm grades.

ENTERING NEW COURSES

Students may enter a course for the first time only during the first week of classes the term.

TRANSFER CREDIT

Courses taken at other institutions after a student has enrolled at Santa Clara will t be considered for transfer credit unless approved in advance by the appropriate ademic Dean at Santa Clara.

Students who transfer a specific course to the University from another institution ll not accumulate credit for these courses unless they are accumulated in sufficient antity to total the quarter unit equivalent of a term course.

The student's grade-point average is computed only on work done at Santa Clara. llegiate work at another institution with a grade of C or better may be transferred to anta Clara and counted in fulfillment of graduation requirements, but it will not be unted in determining the student's grade-point average and rank in class.

INCOMPLETES

A student's work may be reported incomplete if, due to unavoidable circumstances, me essential portion of his work in the course remains unfinished after the final ex- nination. An incomplete becomes a failure unless the unfinished work is completed the satisfaction of the instructor within a period of one year.

ACADEMIC PROBATION, SUSPENSION, DISQUALIFICATION, REINSTATEMENTS

Probation

Freshmen and sophomores are placed on probation if they are three (3) grad points below C.

Juniors and seniors are placed on probation if they are two (2) grade poin below C.

A student four or five grade points below a C will be suspended in June. If he i improving in the Spring term, the number would be five. If his work is poorer in th Spring term, the number would be four.

Suspension

A student who remains on probation two terms without making up one grade poir per term is subject to suspension for up to one year. A student who returns afte suspension and does not reduce his deficiency by one grade point per term will b disqualified. No student may be suspended twice. Suspension in one school or colleg of the University is effective in all.

Disqualification

Normally, students are disqualified only after they have returned to the Universit following an academic suspension and again go on academic probation. At the dis cretion of the Dean of the School, a student may be permanently disqualified withou previous probation, or suspension, for unsatisfactory academic performance.

A student who has been disqualified is excluded from further attendance at th University and is permanently disbarred therefrom.

A student who does not have an overall C average and a C in his major at th beginning of his final term will not be permitted to graduate at the end of that term, n matter what his grades may be during that term.

Reinstatement

A student who has been academically suspended from the University may not b readmitted except after the lapse of the period for which he was suspended an through the special action of the Committee on Admissions. To obtain readmission h must write a letter to the Committee informing them of this fact, and if he ha spent the intervening period in another institution, he must present grades of suc quality as to give promise of success in the remainder of his college work. His statu if readmitted will be "probation."

WRITTEN EXAMINATIONS

Written examinations are held at the middle and end of each term. A report of th student's progress is prepared by the Registrar's office and mailed to his parents onl at the end of the term. Students earning a D or F at the mid-term will be notified.

A student guilty of dishonesty in an examination will be given a failure for the course. In special cases, the administration may impose the penalty of dismissal fro the University.

LEAVE OF ABSENCE

Undergraduate students who do not register for one term must reapply for ad-ssion if they wish to register again at a later time unless, prior to their absence, they :eived a written notice of leave of absence from the appropriate academic Dean. leave of absence will not be extended beyond one term.

WITHDRAWAL FROM THE UNIVERSITY

When a student withdraws from the University, he must report to the Registrar for Withdrawal Form and complete the necessary procedure under penalty of receiving for all incompleted courses.

CHALLENGING COURSES

A course is said to be challenged when a student takes a special examination in course for the purpose of obtaining credit for it. He may prepare for this procedure directed independent study.

Any course in the catalog may be challenged except those specifically identified the catalog as exempted from challenge (indicated by the letters NCX) and those quiring laboratories.

To challenge a course, a student must have a 2.2 cumulative average and a 2.5 erage in his major field. Freshmen and transfer students are not eligible to challenge course until they have completed one term of work at Santa Clara. A student desiring challenge a course should obtain a form from the Office of the Registrar on which will identify the course as well as any course he has previously audited or chal-nged. He must then receive approval from an instructor in the department and the an of his School. A fee of $10.00 will be charged for each course challenged.

Normally the examinations for challenging courses will be given on the third turday of each term. The petition for challenging a course must be submitted at least o weeks before the examination date.

Grades will be issued for challenging courses in the same manner as those ob-ned through regular course work. Courses successfully challenged will fulfill grad-tion requirements but will not count towards the forty required for graduation. allenged courses may not be used in the performance of residence requirements. e department shall establish the level of performance to be obtained and any re-irements in addition to an examination which will be three to four hours in duration.

AUDITING COURSES

Only students who have maintained a B average in the University may audit a urse. These students may audit one course in addition to the three courses they take the upper division, or the four courses taken in lower division work. A student may t enroll as a course auditor and then decide to take the final examination for credit. he wishes credit for an audited course, he may challenge the course during the fol-wing term through the normal challenging procedure.

Students who are not full-time students must pay $125.00 per course for auditing. student may not audit more than three courses during his four years at Santa Clara.

ATTENDANCE

Students are required to attend all classes. Penalties for absences are left to t discretion of individual instructors.

CHANGING COURSES, MAJORS, SCHOOL OR COLLEGE

Certain administrative procedures for changing course registration, changi majors within a College or School, or changing from one School to another must l observed or the student will be incorrectly charged, to the possible detriment of h academic record. The necessary forms and procedures may be obtained from tl Office of the Registrar.

A SECOND BACHELOR'S DEGREE

Ordinarily work toward a second bachelor's degree is discouraged by the Ur versity but complete changes of objective occasionally require attainment of such a additional degree. Applicants for admission to undergraduate study for a secor bachelor's degree must indicate by their previous scholastic record a strong prob bility of academic success in this undertaking. Admission is subject to approval of th Dean of the School or College in which work is to be done. A minimum of nine course beyond the first bachelor's degree is required. Financial aid is normally not availab to students seeking a second bachelor's degree.

RIGHTS RESERVED

The curriculum and regulations affecting students may be revised at any time the discretion of the University administration.

GRADUATION REQUIREMENTS

The general requirements for graduation from the University of Santa Clara can summarized as follows:

1. Complete a program approved by the University as meeting the requirements for the particular degree.
2. Achieve an overall academic performance level of a C which is a 2.0 numerical average.
3. Obtain a C average in the courses of the major.
4. Complete the residence requirement of at least seven term courses normally in the year immediately preceding the awarding of the Bachelor's degree. Transfer students who attend the university only in their senior year shall complete nine term courses as a residence requirement.
5. Satisfy the American History and Institutions requirement by examination (not for credit) or by courses completed at this or another University.
6. In addition to requirements established by the separate colleges and schools of the University, each candidate for a bachelor's degree must complete three courses in Religious Studies.

College of Humanities

The College of Humanities requires that for a Bachelor of Arts degree the candi-te complete, in addition to the requirements of his major, the following core courses:

Two term courses in natural science;

Two term courses in social science;

Three term courses in English (1,2,3 or equivalent);

Three term courses in a foreign language, or continuation of a language already idied through course 22;

One term course from those offered in the departments of Creative Arts, Fine Arts, isic, and Theatre Arts;

Four term courses in the humanities, outside the major department, from those ered in history, literature and philosophy.

One of the above courses should be in the area of ethnic studies. The California ate requirement in American Institutions may be met by taking any course in U.S. story or U.S. Government or by passing a test in either of the same two fields.

Major Department Requirements. Each department sets the requirements for its ajors, but with the following stipulation: no department may require its majors to take ore than a total of twelve courses, or less than eight upper division courses, in the partment itself. With the approval of the Dean, however, departments may establish ditional requirements outside the major deparments.

College of Sciences

Candidates for the degree of Bachelor of Science must include in their programs, in dition to the requirements of their major departments, the following areas of study:

*English: Two courses in composition and literature.

Humanities: Four courses selected from the areas of History, Literature and ilosophy.

Social Sciences: Two courses selected from the areas of Psychology, Anthro-

*For students who intend to earn a Secondary Teaching Credential, four courses English are required. One of these must be a course in Advanced English Composi-n.

pology, Sociology, Economics, Political Science and Geography.

Natural Sciences: One course in a natural science. The course chosen must have a laboratory associated with it.

Mathematics: Two courses.

Contemporary Issues: One course in the general area of Ethnic Studies.

School of Business

Lower Division. The recommended program for the first two years in the School of Business is the same for all students. Each person must complete at least 22 term courses in the lower division, including the following:*

A. English: Three courses to be determined in accordance with the student's background. One of the three may be Speech.

B. History: Institutions Breadth Requirement: A total of three courses to be selected from the following: Business 11 (Business and Society); Economics 12 (American Economic History)**; History (U.S. History courses satisfy the American History and Institution's requirement).

C. Mathematics: One of the following sequences to be determined in accordance with the student's background

   Mathematics 11, 12, 13 (or Science);
   Mathematics 1, 6, 7;
   Mathematics 6, 7, Science;
   Business 14, 15, 16 (or Science);
   Business 13, 14, 15.
   Both Mathematics 1 and Business 13 may not be taken for credit.
   Both Mathematics 7 and Business 14 may not be taken for credit.
   Both Mathematics 7 and 11 may not be taken for credit.

D. Religious Studies: Two courses (part of the University requirement).

E. Philosophy: Two lower division courses.

F. Accounting: Business 1, 2, 3.

G. Economics: Economics 1, 2.

H. Statistics: Business 40 or other approved statistics course.

I. Electives (3-5): One of which must be selected from the Social Sciences (other than Economics), Business Law.

Upper Division. The primary objective in the upper division is to provide fundamental academic and professional training which will qualify graduates for the responsibilities of business. The secondary objective is to offer sufficient work in accounting, management, marketing, finance, economics and quantitative methods, so that students who desire to specialize may prepare for careers in these areas.

Each student is required on entering the upper division to fulfill the following minimum requirements for graduaton:

1. At least 18 term courses must be completed after fulfilling the requirements of lower division.
2. Residence of at least one year immediately preceding graduation.
3. Electives. Subjects not taken as prescribed courses and not included in the student's major and minor sequences may be chosen as free electives to complete the 40 term courses required for graduation.
4. A minimum of 11 upper-division courses in Business and Economics must be completed during the junior and senior years.

*Any change in program may be approved by the Dean on basis of written petition.
**May be used to satisfy the institutional requirement.

Substitution for some of the total prescribed units may be allowed in special pro-ams with permission of the Dean.

The program is arranged so that every student must include during his junior and nior years courses in the major functions found in typical business firms:

Basic Courses: During the junior and senior years, the student will be required to ke 100 (Quantitative Methods), 121 (Finance), 160 (Business Organization and Man-ement), 181 (Marketing), Economics 114 (Price Theory), and Business 162 (Business licy) or Economics 115 (Aggregate Economic Theory).

Field of Emphasis: A minimum of four courses beyond the introductory course in e field. The following fields of emphasis are approved: Accounting, Quantitative ethods, Economics, Finance, Administration, and Marketing.

The above required subjects give the students the training necessary in preparing em to have a broad business outlook. With courses in marketing, management, nance, economics, and accounting in their required program, students are prepared grasp and cope with the complicated problems of management. They are not limited their analysis of these varied problems to any one phase of the operations of a com-any, but are equipped to consider all aspects.

School of Engineering

The undergraduate degrees are earned by completion of 40 term courses in which overall C (2.0) average must be earned. The courses which follow may be scheduled different terms depending upon the major department requirements.

Freshman Year: Mathematics 11, 12, 13; Chemistry 3, 4; Physics 4; English 1, 2; ngineering Major; Design 1; Free Elective.

Sophomore Year: Mathematics 21; Physics 5, 6; Philosophy; Four liberal electives; ree Elective; Two Engineering Major.

Junior Year: Electrical Engineering I, II or II-C; Thermo-Fluid Mechanics I, II; trength of Materials; Philosophy; Three Engineering Major.

Senior Year: Two liberal electives; Seven Engineering Major.

The following courses are scheduled by those electing a specific degree program:

Civil Engineering: 10, 15, 20, 110, 116, 121, 130, 131, 133, 135, 140, 145, 148; athematics 22 or Applied Mathematics 118 or Mathematics 122.

Electrical Engineering: 104, 111, 112, 131, 151, 161, 198; Physics 7; Civil Engi-eering 111; Applied Mathematics 118; three electives.

Mechanical Engineering: 11, 110, 111, 122, 135, 140, 198 and one elective; Physics or Mechanical Engineering 15; Civil Engineering 111 or 15 and 110; Mathematics 22; pplied Mathematics 118.

(Variations may be arranged with counselors.)

The Bachelor of Science in Engineering degree allows a student to plan a program ith different objectives than the programs in civil, electrical and mechanical engi-eering. Some of these objectives might include:

1. Medicine or related health sciences, sanitary or bio-engineering. Additional course work in biology and chemistry would be appropriate.
2. Graduate work in business administration. Courses in accounting, economics, business law and marketing will allow a student to move on to graduate school without course deficiencies.
3. Computer programming and data processing. Additional courses in applied mathematics may be scheduled.
4. Teaching in secondary schools. Additional courses in mathematics and science

will insure obtaining a teaching credential in one additional year.

5. Graduate work in public administration. Courses in political science, creative arts, history of architecture can be arranged.
6. Law school has been a traditional interest of many engineers.

These programs will normally be planned no later than the junior year to insure that the degree requirements and the courses of special interest can be scheduled. Students enrolled in all of the courses taken by all engineers through the second term of the junior year. In the remaining four terms, the twelve courses should include:

One humanities elective;

Three courses in an engineering design sequence selected from the Civil, Electrical or Mechanical program. A typical sequence might include:

Mechanical Engineering 110, 111, 140; Mechanical Engineering 122, 135, 136; Electrical Engineering 111, 112, 131; Electrical Engineering 151, 152, 131; Civil Engineering 140, 142, 145. A thesis is required and credit for it may be substituted for one of these courses;

Three additional term courses in Mathematics, Science or Engineering;

Five term courses which contribute to some degree objective.

A course plan should be submitted for approval by a member of the engineering faculty to insure that the requirements for the degree are satisfied.

Senior Thesis. All students seeking a degree in Engineering are required to submit a thesis during their senior year.

The senior thesis provides a student with the opportunity to carry out an original investigation in an orderly fashion, the momentum of progress being supplied primarily by the student's enthusiasm, interest, and effort. The project is scheduled throughout the senior year and must be submitted before the student is admitted to his final examinations.

It is felt that a good undergraduate thesis:

1. Should involve an element of originality. It should be an investigation on the frontier of the student's knowledge.
2. Should require an element of design, an element of equipment assembly and utilization of instrumentation and a test program.
3. Should include successful evaluation of results utilizing sound test techniques and application of fundamentals of engineering. It is desirable that the evaluation require an extension of previous information to cope with the thesis project.

The Department chairman appoints a thesis advisor. The advisor will approve the thesis subject and method of approach, the outline of the thesis, initial drafts and final copy of the thesis as the project develops.

Normal Time Requirements. The average student will be able to complete a degree program in 12 terms. Those students who must assume part-time off-campus jobs, or who add additional programs to the Engineering program, will require additional terms. Seven term courses taken in the last three regular terms of attendance at the University shall constitute residence requirements for a degree.

GRADUATION HONORS

A candidate for an undergraduate or professional degree who has a grade-point average of 3.40 graduates Cum Laude; one who has a grade-point average of 3.65, Magna Cum Laude; one who has a grade point average of 3.85, Summa Cum Laude. Graduation honors are based on the work of the four years.

Academic Programs

THE SANTA CLARA PLAN

The purpose of the Santa Clara Plan is to minimize the diffusion of each student's interest and concentration by limiting the number of courses taken at any one time, and to maximize the opportunities for independent study.

Dividing the academic year from September to June into three eleven-week terms and restricting the course load to either three or four courses per term allows the student to concentrate more effectively on a limited number of subjects at any one time. Yet throughout the four years there is ample opportunity for the student to explore a wide range of interests relating either directly or indirectly to his major field of study.

During his freshman and sophomore years the student may take either three or four courses per term for a minimum of twenty-two in the two-year period. As a junior and senior the student is limited to three courses per term, for a total of eighteen. Only in special cases may this number be exceeded.

Classes meet four times per week, on Monday, Tuesday, Thursday and Friday. Wednesday is reserved for nonclassroom activities.

DEPARTMENTAL HONORS PROGRAM

The Departmental Honors Program is designed to meet the University's responsibility to its superior students by allowing them to pursue an Honors curriculum while majoring in any field. Lower division study for Honors students is a combination of seminars, limited to 10 or 12 students, and lecture courses which presuppose work beyond the usual high school level. In junior and senior years Honors students work intensively in their areas of specialization. Much of their upper division work will be in seminars and directed research. Honors students are less strictly bound by general University requirements and various Pass-Fail options encourage better use of electives outside their major fields. Special counseling opportunities and registration privileges are available for Honors students which enable them to create the curricula best suited to their abilities, preferences and future professional needs.

Toward the end of their freshman year, Honors students who have demonstrated exceptional academic responsibility are designated Honor Scholars, are released from all University requirements, and are permitted to follow a personalized program of studies during their next three years. Honors Scholars are chosen and counseled by a committee made up of their Dean, Department Chairman, and the Chairman of the Honors Committee.

Students are considered for admission to the Honors Program on the basis of their high school records, Scholastic Aptitude Test scores, letters of recommendation, and expressed interest. About thirty freshmen are accepted into Honors each year. A 3.50 high school grade point average and a 1350 SAT total score (including a 650 verbal score) are the ordinary requirements for acceptance into the program. All incoming Honors freshmen are considered Candidates for Honors and are accepted into full Honors status during the Spring Term of the freshman year after two terms of successful Honors performance. To remain in the program, students must satisfy their instructors that they are doing work of Honors caliber as well as maintain a 3.0 cumulative grade point average. Final admission to candidacy as well as to full Honors status is determined by the Faculty Honors Committee.

PRE-MEDICAL PROGRAM

Admission to medical school is not dependent on any particular undergraduate concentration, nor is it guaranteed by graduation from Santa Clara. Programs which satisfy the requirements prescribed by the Council of Education of the American Medical Association are offered by the Department of Biology and the Department of Chemistry. The curriculum is so arranged that the student may comply with the requirements for entrance to medical schools in three years. Medical schools, however, generally prefer that students spend four years in their preparation and include such cultural courses in their programs as will better fit them for the practice of medicine. The Chairman of the Medical Services Committee in cooperation with the academic advisors will help the student plan a program. Prospective applicants for admission to medical school are urged to study the booklet, *Admission Requirements of American Medical Colleges Including Canada*, which may be purchased from the Association of American Medical Colleges, 2530 Ridge Avenue, Evanston, Illinois 60201.

PRE-DENTAL PROGRAM

Pre-dental programs meeting all the requirements for entrance into the school of dentistry are also offered by the Department of Biology and the Department of Chemistry. Prospective applicants to dental schools should consult with the Chairman of the Medical Services Committee and should obtain a copy of *Admission Requirements of American Dental Schools* from the American Association of Dental Schools, 211 East Chicago Avenue, Chicago, Illinois 60611.

PRE-LEGAL PROGRAM

There is no one best preparation for the study of law. Admissions officers in the best law schools look to breadth of background and quality of work. All concerned with the law and its teaching, however, agree that the ability to write and to speak with clarity and precision is of paramount importance. A course in accounting is virtually essential. This can be said about other preparation: a broad foundation in the social sciences, coupled with a careful selection of courses in English, history, and speech, is most desirable. The precise selection of courses will vary with the major and with the different needs and aptitudes of the student.

PRE-TEACHING PROGRAM

Preparation for prospective teachers is offered by the Department of Education. The Department assists prospective teachers to plan their undergraduate programs so as to include courses required by the secondary credential program.

COLLEGE OF HUMANITIES

John H. Gray, S.J., Ph.D., *Dean*

The College of Humanities confers the degree of Bachelor of Arts in English, French, German, History, Italian, Philosophy, Religious Studies, Spanish and Theatre Arts.

In addition to these departments, the College also has departments of Classics, Creative Arts, Fine Arts, and Music, which do not have major programs. The Department of Education offers an undergraduate pre-teaching program for prospective teachers.

The Graduate School of the College of Humanities offers programs leading to the California State Teaching Credentials, and confers Master of Arts degrees in Education, English, and History. A full description of all graduate programs is given in the *Bulletin of the Graduate School of Humanities.*

COLLEGE OF HUMANITIES
DEPARTMENT OF THE CLASSICS

George Sullwold, Jr., Ph.D., *Acting Chairman*

Associate Professors: George Sullwold, Walter Kropp, S.J.
Acting Assistant Professor: Douglas W. Olcott

Credit will not be allowed for a classical language which duplicates any of the first four semesters of secondary-school credit in the language or courses completed in another institution of collegiate grade. The first year of secondary-school credit in a language is considered to be equivalent to the first-quarter course in college; each successive year of credit in the same language is equal to one additional course in a sequence of four quarter courses in college. The student, however, must present himself to a member of the department for course placement.

Greek

1. ELEMENTARY GREEK

For beginners. Reading in Attic Greek is combined throughout with the learning of forms, vocabulary, and syntax.

2. ELEMENTARY GREEK

Continuation of 1.

11. INTRODUCTION TO ATTIC GREEK

For those who enter with non-Attic Greek only, or who need to review elementary Attic. Others may take this course with instructor's permission.

12. ATTIC PROSE

Continuation of 11.

21. INTERMEDIATE GREEK

Xenophon and/or Plato. Prose Composition. Prerequisite: 2 or 12.

22. INTERMEDIATE GREEK

Continuation of 21.

61. CLASSICAL CIVILIZATION

100. HOMER, Selections

101. HOMER, Selections

110. SOPHOCLES OR EURIPIDES

111. SOPHOCLES OR EURIPIDES

Continuation of 110.

120. THUCYDIDES, HERODOTUS

121. HISTORY OF GREECE

125. COMPOSITION AND SIGHT-READING

130. PLATO

131. THE ART OF ANCIENT GREECE

140. AESCHYLUS

150. THE ORATORS

160. COMEDY

170. PINDAR, LYRIC POETRY

180. NEW TESTAMENT, Selections

190. DIRECTED READING

Latin

Students who have entered Santa Clara with Latin credit should consult with a member of the department to determine at what stage they should begin here.

1. ELEMENTARY LATIN

For beginners. Reading in Latin is combined throughout with the learning of forms, vocabulary, and syntax.

2. ELEMENTARY LATIN

Continuation of 1.

3. ELEMENTARY LATIN

Continuation of 2.

20. REVIEW OF GRAMMAR, READINGS IN LATIN PROSE

Designed for students who wish to review Latin and prepare for 22.

21. INTERMEDIATE LATIN

Readings from Cicero's Orations. Prose Composition. Prerequisite: 3 or 20.

22. INTERMEDIATE LATIN

Readings from Vergil's Aeneid.

100. CAESAR, Selections

105. CICERO, Selected Philosophical Dialogues

110. TERENCE AND/OR PLAUTUS

115. CICERO, Selected Orations

120. VERGIL, Selections from the Aeneid

125. COMPOSITION AND SIGHT-READING

130. CICERO, THE LETTERS, Prose Composition

140. HORACE, THE ODES AND EPODES

150. OVID, Selections

160. VERGIL, THE ECLOGUES AND GEORGICS

170. SATIRE

180. LUCRETIUS

190. DIRECTED READING

COLLEGE OF HUMANITIES
DEPARTMENT OF CREATIVE ARTS

Philip B. Welch, M.Arch., R.A., *Chairman*

Associate Professor: Philip B. Welch
Artist in Residence: Diana M. Welch

The University offers elective courses in the areas of Architecture, Ballet, Cinema, City Planning, Design, Photography and Sculpture. The program is designed to introduce the students to the humanistic study of the creative arts, and to expand their relationship to other humanistic disciplines, such as literature, music and philosophy. The work in classroom and studio is designed for the individual creative solution of the problem with sound professional techniques. The collections of de Saisset Art Gallery and the exhibitions program of the Creative Arts Gallery, the programs of the University Ballet Ensemble, and the Special Cinema Series supplement the regular academic program of the Department.

Creative Arts

10. CULTURAL FORMS I

A study of the individual and the contemporary structure of the mind. A study of painting, sculpture, and architecture to develop informed and sensitive understanding of visual arts. Theory and practice of visual semantics of major cultural forms. Fall term emphasis on African culture. Multi-media lectures, discussion, reading, field trips.

11. CULTURAL FORMS II

Inter-disciplinary study of theory and practice of individual concepts expressed in space and form of major world cultures. Representation of space and form. Discussion of drawing, painting, sculpture, and abstract forms in historical context. Winter term emphasis on relationships of Western concepts of Jung, Chardin, with concepts of India, China, and Japan. Multi-media lectures, discussion, reading, field trips.

12. CULTURAL FORMS III

A study in theory and practice of the correlation of cultural forms of all areas of creative arts. Emphasis on Pre-Columbian Culture of Mexico from 25,000 B.C. and 20th Century Western art and architecture. Multi-media lectures, discussions, reading, and field trips.

15. PHILOSOPHY OF THE CREATIVE ARTS

A broadly scaled study in theory and practice emphasizing the inter-relationship and differences of the creative art forms. Lectures, demonstrations, concert and gallery tours required.

20. ARCHITECTURAL SPACE DESIGN I

Elementary architectural and sculptural studio problems. Discussion of methods, structure, and techniques in historical context. Studio exercises in creative form, structure, and space.

21. ARCHITECTURAL SPACE DESIGN II

Relationship of space, form, light, and function in architecture and sculpture. Lectures, discussion, creative studio work, weekly seminar.

22. ARCHITECTURAL SPACE DESIGN III

Organization of space, expression of the nature of materials. Architectural and sculptural techniques, history, aesthetics. Lectures, discussions, creative studio work, seminar.

50. INTRODUCTION TO MODERN SCULPTURE

Contemporary sculpture, visual arts, as expression of modern life. Impressionism, Expressionism, Cubism, Surrelaism, Abstract Expression, Op, Pop, Environmental. Multi-media method, discussion, field trips, studio work.

51. INTRODUCTION TO MODERN ARCHITECTURE

Architecture as an art form. From 1850 to the present including the creative work of Paxton, Eiffel, Maillart, Van de Veld, Mackintosh, Sullivan, Wright, LeCourbusier, Saarinen, Goff. Studio work.

55. INTRODUCTION TO CINEMA AND TELEVISION AESTHETICS

Cinema and television as creative form. Historical development from 1835 to 1955, both aesthetics and technique, from D. W. Griffith to Bergman, Fellini, Wells. Films, discussion, reading, writing, criticism.

56. INTRODUCTION TO CINEMA AND TELEVISION PRODUCTION

Cinema and television as creative form from 1955 to present. Film production, technique, history. Kurosawa, Antonioni, Underground Cinema. Films, discussions, reading, film creation.

60. PHOTOGRAPHY I

Practice in the techniques of creative photography in black and white, with investigation of light, multiple exposure, reflection. Study of films, lenses, light meters, and darkroom with emphasis on creative individual expression.

99. INDIVIDUAL STUDY

Advanced studio work or independent research for outstanding freshmen and sophomores. Prerequisite: Permission of the Chairman of the Department.

100. CONTEMPORARY SPACE DIMENSIONS I

A study of man's use of earth as a living environment. Historical growth of cities, present state of cities. Study of space forms in architecture and sculpture. Multi-media method, discussion, reading, field trips, studio work.

101. CONTEMPORARY SPACE DIMENSIONS II

Study present state of cities, their future potential. Primary reference is earth as home of billions of people, historical problems, future potential of living space. Multi-media method, discussions, reading, field trips, studio work.

152. ADVANCED CINEMA AND TELEVISION AESTHETICS

Study in depth of cinema and television as creative form. Historical development from 1835 to 1955, both aesthetics and technique, from D. W. Griffith to Bergman, Fellini, Wells. Films, discussion, reading, writing, criticism.

153. ADVANCED CINEMA AND TELEVISION PRODUCTION

Study in depth of cinema and television as creative form from 1955 to present. Film production, technique, history, Kurosawa, Antonioni, Underground Cinema. Films, discussions, reading, film creation.

161. PHOTOGRAPHY II

Study of photography as creative expression. Emphasis on individual point of view. Prerequisite: 60 or equivalent. Extensive practice and studio work.

199. INDIVIDUAL STUDY

Advanced studio work or independent research for outstanding Juniors and Seniors. Prerequisite: Permission of Chairman.

Ballet

40. ELEMENTARY MODERN BALLET I

Basic ballet barre work, center work in "dry" form, with simple adage and port de bras. Improvisation to all kinds of music. History, aesthetics, discussion, films.

41. ELEMENTARY MODERN BALLET II

Continuation of 40.

42. ELEMENTARY MODERN BALLET III

Continuation of 41, allegro with linking steps and movements. Improvisation to all types of music. History, aesthetics, discussion, films.

43. ELEMENTARY MODERN BALLET IV

Continuation of 42.

44. INTERMEDIATE MODERN BALLET I

Completion of barre work, simple combinations at barre and center. Improvisation to all types of music. History, aesthetics, discussion, films.

45. INTERMEDIATE MODERN BALLET II

Survey of history of dance from primitive man through ancient, medieval, Asiatic, and modern dance. Relation to other fine arts, to religion. Discussion of history and techniques with films.

90. HISTORY OF DANCE

140. INTERMEDIATE MODERN BALLET III

Continuation of 45, introduction to pointe work, development of more complex combinations at barre and center. Improvisation and individual projects. History, aesthetics, films.

141. INTERMEDIATE MODERN BALLET IV

Continuation of 140.

142. ADVANCED MODERN BALLET I

Developed pointe work, more intricate combinations at barre and center. Improvisation and elementary choreographic expression. History, aesthetics, special films. Cinema-ballet.

143. ADVANCED MODERN BALLET II

Continuation of 142.

144. ADVANCED MODERN BALLET III

Continuation of 143, more finished creative expression. Methods for teaching children, supervised teaching. Thesis on dance. Discussions of history and aesthetics.

145. ADVANCED MODERN BALLET IV

Continuation of 144.

146. CHOREOGRAPHY

Music, projection, elements of choreographic expression, from basic spatial design to various group sizes. Literature, poetry, painting, etc., as basis for ballet creation. Prerequisites: 12, 90, 143.

147. MODERN BALLET ENSEMBLE

Open to selected students for preparation and performance in modern and historical ballets. Credit available only after three terms of membership. May be repeated for credit.

COLLEGE OF HUMANITIES
DEPARTMENT OF EDUCATION

Kenneth E. Blaker, Ph.D., *Chairman*

Professor: Gerald E. McDonald
Associate Professors: Louis I. Bannan, S.J.; Kenneth E. Blaker
Assistant Professors: James A. Fulton, David E. Logothetti, Iris M. Tiedt, William W. Yabroff

Pre-teaching Program

Students who wish to enter the teaching profession should enroll in the Pre-eaching Program established by the Department of Education with the cooperation of everal departments in the Colleges of Humanities and Sciences. Curricula for prospec-ve teachers are available in the offices of the departments.

Freshmen who would elect teaching as a profession are urged to attend the ientation lectures and the seminars provided by the Department of Education.

Teaching Credential Program

The University of Santa Clara is accredited by the California State Board of ducation to recommend qualified candidates for the credential to teach in secondary chools. Persons seeking this credential must first be admitted to the Graduate Di-sion of the University in the prescribed manner. The Committee on Teacher Education ill then act on the application.

The profession of teaching requires liberally educated persons who possess both ofessional competence and specialized knowledge and skill in the areas to be taught. e undergraduate preparation of teachers should include a broad general education. his undergraduate years, also, the prospective teacher should develop a teaching ajor and minor and begin his study of professional education. The prospective candi-ate for the credential should consult with the Department of Education for approval his study program. He must spend a postgraduate academic year at the University, uring which he completes a full schedule of work with a grade-point average of 2.75.

In the selection of students seeking to prepare for a credential, the Committee n Teacher Education will consider character, aptitude, physical and mental health, tizenship, and the quality and pattern of academic preparation.

108. HISTORY OF EDUCATION

The growth of American public education. The secondary school. The influenc of leading educators. Major educational trends.

111. PHILOSOPHY OF EDUCATION

A survey of principles, philosophy, and theory of education affecting present-da procedure.

119. PSYCHOLOGY OF EDUCATION

Physical, mental, and moral changes occuring during the early childhood an adolescent period, as well as the development of their attitudes, interests, an problems. Practical application of psychological principles of learning an guidance. Introduction to testing and measurements concepts as they apply t classroom evaluation.

COLLEGE OF HUMANITIES
DEPARTMENT OF ENGLISH

George J. Sullwold, Jr., Ph.D., *Chairman*

Professor: Francis X. Duggan
Associate Professors: James P. Degnan, John H. Gray, S.J., Christiaan Lievestro, Charles T. Phipps, S.J., George J. Sullwold
Assistant Professors: Edward D. Gross, Eleanor Long, Robert H. Meyer, Elizabeth J. Moran, Felton G. O'Toole, S.J., Robert A. Raines, Richard M. Schmidt, Joseph Subbiondo, William J. Rewak, S.J.
Instructors: Marshall Cook, Bryan Misselbrook, David Schuman, Kenneth Miller

Bachelor of Arts

Students who wish to make English their major subject must complete 13 course in the Department with an average grade of C.

Lower Division—Freshman year: English 1, 2, 3, or English 41, 42, 43. Sophomor year: English 46 and 47 or 48, or the Humanities series, English 61, 62, 63. Othe English electives to make a total of four courses.

Upper Division—One course in Shakespeare, one course in Chaucer, three uppe division period courses, and three electives.

A total of eight upper division courses must be taken during the junior an senior years.

Honors Program

Students majoring in English may participate in the University Honors Program. ıe Department of English offers each year special sections of certain lower division urses limited to Honors students. The Department also offers a specific Honors rriculum for its Honors students and permits them to begin in their sophomore year series of upper division period courses (155, 156, 157, 120, 121, 122) in place of 46, , 48.

Teacher Credential with a Major in English

Candidates for a secondary teaching credential with a major in English are recomended to complete the following program:

1. All requirements for a Bachelor of Arts with a major in English.
   Lower Division—English 1, 2, 3, or English 41, 42, 43. English 46 and 47. English 61, 62, and 63 may be substituted for 46 and 47. Recommended electives: English 48, 65, 66.
   Upper Division—One course in Shakespeare (116, 117, or 118). One course in Chaucer (152 or 153). Three period courses of which one should concern American literature (130 or 131). One course in Language and Linguistics (101, 102, 103). One course in Advanced Composition (173 or 174). One free elective.
2. During the fifth year at least two English courses are required. These courses may be the recommended courses in Language and Linguistics or in Advanced Composition. Any upper division course may be elected.
3. Education courses as specified by the Department of Education. Education 108, 111, 119 may be taken during the junior and senior years.

Teaching Minor in English

The teaching minor generally consists of thirty quarter units of English including ›th upper and lower division. The English Department strongly recommends four ›per division courses for the minor in English.

Lower Division—English 1, 2, and 3, or 41, 42, and 43. Suggested electives: ıglish 25, 28, 30.

Upper Division—English 101, 102, or 103. English 173 or 174 is necessary for all edentials. Electives should be chosen to supplement the lower division. Ideally the ıdent should have at least one course in Shakespeare and one course in American erature (119, 126, 130, 131).

1. COMPOSITION AND RHETORIC I

Practice in the fundamentals of expository and critical writing. This course is designed to furnish the student the writing skills necessary for college work. Readings in selected modern essays.

2. COMPOSITION AND RHETORIC II

Continuation of 1. Practice in expository and critical writing. English 2 or 3 will satisfy the requirement for those students who need only two English courses.

3. COMPOSITION AND LITERATURE

Practice in expository and critical writing. Readings in the various forms o literature.

25. CONTEMPORARY DRAMA

Selected readings in dramatic literature. Emphasis on contemporary English American, and Continental drama. Recommended for students desiring a teach ing minor in English.

26. ENGLISH CLASSICS

Selected readings in English literature for non-English majors.

27. MODERN NOVEL

The changing concept of the novel during the twentieth century. An elective course open to all students.

28. SHAKESPEARE

An introduction to the dramatic work. Readings in the major tragedies, comedies and chronicle plays. Does not fulfill the Shakespeare requirement for English majors, but is recommended for those desiring a teaching minor in English.

30. AMERICAN CLASSICS

Selected readings in American literature for non-English majors. Emphasis on modern poets and novelists. Recommended for students desiring a teaching minor in English.

41. CRITICAL COMPOSITION I

Directed practice in writing literary criticism. Fulfills requirement of 1, for special students.

42. CRITICAL COMPOSITION II

Directed practice in writing literary criticism. Fulfills requirement of 2, for special students.

43. CRITICAL COMPOSITION III

Directed practice in writing literary criticism. Fulfills requirement of 3, for special students.

46. SURVEY OF ENGLISH LITERATURE I

Readings in the history of English literature from the beginnings to 1660. Emphasis on the history of ideas and on the major authors. Recommended for English majors.

7. SURVEY OF ENGLISH LITERATURE II

Readings in the history of English literature from 1660 to 1832. Emphasis on the history of ideas and on the major authors. Required of English majors.

8. SURVEY OF ENGLISH LITERATURE III

Readings in the history of English literature from 1832 to the present. Emphasis on the history of ideas and on the major authors. Recommended for English majors.

9. AFRO-AMERICAN LITERATURE

Satisfies Ethnic Studies requirement.

11. HUMANITIES I

Civilization of the Greeks and Romans.

12. HUMANITIES II

Literature and ideas from St. Augustine to Montaigne.

13. HUMANITIES III

Literature and ideas from Descartes to the rise of literary realism.

15. MYTHOLOGY

A study of classical mythology, which considers literary, psychological and anthropological implications. Recommended elective for English majors.

16. FOLKLORE

A study of traditional customs, beliefs, speech-forms, and narratives, with emphasis on the function of such traditions in literature and in contemporary life. Recommended elective for English majors. Satisfies Ethnic Studies requirement.

21. INTRODUCTION TO LINGUISTICS

General survey of the science of linguistics: phonology, morphology, syntax, grammar, and usage.

22. MODERN GRAMMAR

Analysis of the basic problems of describing grammatical structure: traditional, structural, and transformational-generative grammars.

23. HISTORY OF THE ENGLISH LANGUAGE

An introduction to the study of the English Language: its origin, structure, and development; the growth of vocabulary; syntactic change; usage levels; and elementary phonetics.

104. CRITICISM AND DRAMA

Classical, Neo-classical and modern theories of drama. Readings in the in portant critics and a study of selected dramas.

105. CRITICISM AND POETRY

Romantic and modern theories of poetry. Readings in the important critics ar study of selected dramas.

106. CRITICISM AND FICTION

A review of the theories of fiction with special emphasis on modern criticisr Readings in the important critics and a study of selected works of prose fictio

111. CLASSICAL DRAMA

A study of selected Greek and Roman plays in translation.

112. CONTINENTAL DRAMA

A study of selected French, German, and Italian plays of the 17th and 18 centuries in translation.

113. MODERN DRAMA

A study of selected European and American plays of the late 19th and 20 centuries in translation.

114. ENGLISH DRAMA I

The history of the drama in England from the beginning to 1660. Emphasis c Elizabethan and Jacobean dramas.

115. ENGLISH DRAMA II

The study of the drama in England from 1660 to the present. Emphasis c Restoration and contemporary drama.

116. SHAKESPEARE'S TRAGEDIES

Study of Shakespeare's major tragedies.

117. SHAKESPEARE'S COMEDIES

Study of Shakespeare's major festive and problem comedies.

118. SHAKESPEARE'S HISTORIES AND SONNETS

A study of the *Richard II-to-Henry V* cycle of chronicle plays, and a study of th sonnets.

. **AMERICAN DRAMA**

A study of American drama from its beginnings in 1767 to the present.

. **NEO-CLASSICAL PERIOD**

A study of nondramatic literature of England from 1660 to 1798.

. **ROMANTIC PERIOD**

A study of the nondramatic literature of England from 1798 to 1832.

. **VICTORIAN PERIOD**

A study of the nondramatic literature of England from 1832 to 1900.

. **ENGLISH NOVEL I**

The English novel during the 18th Century.

. **ENGLISH NOVEL II**

A study of the development of the novel in England during the 19th Century.

. **THE AMERICAN NOVEL**

A study of selected major American novels.

. **MODERN NOVEL**

Readings of selected major works of modern English, American and Continental novelists.

. **MAJOR AMERICAN WRITERS I**

A study of the writings of the major American authors up to 1865.

. **MAJOR AMERICAN WRITERS II**

A study of the writings of the major American authors from 1865 to the present.

. **HUMANITIES SEMINAR**

Primarily for Honors students in Science.

. **COMPARATIVE LITERATURE I**

A study of classical forms, themes, and stylistic devices and their specific influence and effect on English literature. Alternate years.

. **COMPARATIVE LITERATURE II**

A study of the major forms and themes of modern Continental literature and their influence on English literature.

149. AFRO-AMERICAN LITERATURE

Fulfills Ethnic Studies requirement. May be elected as an English major electi

152. CHAUCER I

A study in Middle English of Chaucer's *Canterbury Tales*, with emphasis up the language, sources, and genres of the tales.

153. CHAUCER II

A study in Middle English of Chaucer's *Troilus and Criseyde*, with empha upon its language and its antecedents in Western European literature (to read in translation).

155. MEDIEVAL PERIOD

A study in translation of the major movements in English literature from t Norman Conquest to 1485.

156. RENAISSANCE

A study of the nondramatic literature of England from 1485 to 1603.

157. SEVENTEENTH CENTURY

A study of the nondramatic literature of England from 1603 to 1660.

158. MILTON

A study of nearly all the poetry, with emphasis on *Paradise Lost*.

160. MODERN ENGLISH LITERATURE

A study of the nondramatic literature of England from 1900 to the present.

165. CONTEMPORARY LITERATURE

A study of contemporary fiction, poetry, and criticism.

171. FICTION WRITING

A laboratory course designed to give the student instruction and direction writing fiction. Permission of instructor.

172. POETIC COMPOSITION

A laboratory course designed to give the student personal instruction a guidance in writing verse.

173. ADVANCED EXPOSITION

An advanced course in prose composition, specifically aimed at preparing s dents to write longer essays and articles of a scholarly nature.

4. ADVANCED COMPOSITION

A course designed primarily for those students who plan to obtain a teaching credential. Practice in writing and editing. Students interested in creative writing may substitute 173.

0. ADVANCED JOURNALISM

Special problems in editing journals and periodicals. Students will register for this course Spring term.

9. DIRECTED READING

COLLEGE OF HUMANITIES
DEPARTMENT OF FINE ARTS

Terence Netter, M.F.A., *Chairman*

Assistant Professors: Joseph Annino, Terence Netter
Instructor: Paul Kos
Lecturers: Alice de Lisle, Christine Ranes
Artist-in-Residence: Phillip G. Schuyler

At present no Fine Arts major is offered at the University of Santa Clara. However, e exceptionally interested student, who carries another major for graduation, may ver a four year period follow an ordered course of studies which would enable him apply for entrance into qualified graduate M.F.A. programs as long as he maintains n average above 'C' in these courses, and produces a portfolio of art works acceptable such schools.

Such a course of studies would require that the student take three basic studies ourses numbered from 21 through 61; two lower division survey courses in the history art numbered 71 and 75; two upper division courses in the history of art numbered 71 to 175; and six upper division studio courses numbered 131 through the 170 series, cluding three advanced painting courses. In addition to the course work the student ould be required to do independent work toward his portfolio in the senior year.

All courses are open to all students who have met the course prerequisites. Any udent may elect a basic course (numbered under 100); but admission to an upper vision course (numbered over 100) is limited to those who have successfully com- eted the corresponding basic course. (For example, to be admitted to an advanced rawing course one must have completed a basic drawing course.)

The program for all students is ordered not only to teach necessary skills a techniques but also to encourage the creative imagination and an awareness of co temporary art as well as the evolution of aesthetic consciousness. The larger dime sions of art and society, art and philosophy, art and technology will be held in vie of the students who elect Fine Arts courses.

Studio courses require at least twelve hours in the studio per week; six with t instructor and six in independent work. The studios are open to the students eve day until 10:30 p.m. and students are encouraged to work in the studios whenever cla is not in session.

In addition to the faculty and facilities of the Fine Arts department the Universi provides the de Saisset Art Gallery, and related course offerings in the Creative Ar department. The multifarious galleries and museums in the Bay Area are accessib to the students of the University.

21. BASIC DESIGN

An introduction to studio art aimed not only at familiarizing the beginner wi the principles of design involved in two and three dimensional art forms but als at raising the problems of plastic art as an expression of the human spirit.

31. BASIC DRAWING

Introduction to various drawing media and techniques as well as to the problem of self-expression involved in classical and contemporary drawing as an art form

41. BASIC PAINTING

Introduction to the basic skills and concepts requisite for self-expression in oi and acrylics with an emphasis on color and composition as used for creation i two dimensional art forms.

51. BASIC SCULPTURE

Introduction to the fundamentals of art in three dimensional form, includin materials and techniques as well as the problems of form and expressio peculiar to this form.

61. BASIC GRAPHICS

Introduction to the art of printmaking, using the techniques of woodcut, linocu and collograph, etc. to familiarize the student with problems of form and expres sion peculiar to the graphic arts.

71. SURVEY OF ART I

An introduction to the history of art from the Pre-Historic cave drawings throug the early Renaissance. Lectures with slides and assigned readings.

'5. SURVEY OF ART II

An introduction to the history of art in the West from the High Renaissance through modern art and up to contemporary art. Lectures with slides and readings.

31. ADVANCED DRAWING

Drawing from life in various media stressing not only the techniques of composition, perspective, etc., but also the possibilities of creative drawing. Prerequisite: 31.

32. ADVANCED DRAWING

Continuation of 131.

33. ADVANCED DRAWING

Continuation of 132.

41. ADVANCED PAINTING

Involves working in the various styles of paintings from expression through contemporary genres, including painting without a brush. Prerequisite: 41.

42. ADVANCED PAINTING

Continuation of 141.

43. ADVANCED PAINTING

Continuation of 142.

45. TECHNIQUES OF THE OLD MASTERS

A study of the principles and techniques of permanent painting in such media as oils, casein, egg-tempera, etc., aiming at the closest possible relationship of tried techniques with the possibilities of modern products. Prerequisites: 31 and 41.

46. PORTRAITURE

The art of making classical and contemporary portraits in oils and acrylics. Prerequisites: 31 and 41.

47. LANDSCAPE

The art of making landscapes, indoors and outdoors in oils and water colors. Prerequisite: 41.

51. ADVANCED SCULPTURE

A study of the concepts and techniques involved in the projection of contemporary sculpture, using materials such as plaster, plastics and metals. Prerequisite: 51.

152. ADVANCED SCULPTURE

Continuation of 151.

153. ADVANCED SCULPTURE

Continuation of 152.

155. KINETIC SCULPTURE

An exploration of the concepts and engineering skills needed in the creatic of moving sculpture. By permission of the instructor.

162. SILK-SCREEN

The techniques and concepts requisite for making silk-screened prints as a art form. Prerequisite: 61.

163. LITHOGRAPHY

The techniques and concepts requisite for making lithographs (prints from stone) as an art form. Prerequisites: 31 and 61.

171. ANCIENT ART

The history of Pre-Historic and Primitive as well as Ancient art, with an emphas on the classical Greek and Roman periods. Lectures and slides. Prerequisite: 7

172. THE ART OF NORTHERN EUROPE

The History of Early Christian, Romanesque, Gothic and Northern painting c the 15th and 16th Century, with an emphasis on the latter. Prerequisite: 71.

173. THE ART OF SOUTHERN EUROPE

The History of the art of the Early and High Renaissance moving into th Baroque art of Italy and Spain with an emphasis on the Renaissance. Pre requisite: 75.

174. THE MODERN WORLD OF ART

Baroque, Rococo and Neo-Classical art in Northern Europe as it led into the a of the late 19th Century and then to contemporary art. The emphasis is on moc ern art. Prerequisite: 75.

178. AESTHETICS THROUGH KANT

A study of the philosophy of art from Plato through Kant and the beginning c art criticism as such.

179. AESTHETICS TODAY

The philosophy of art from Kant through Hegel, Cassirer and Suzanne Lange leading to an enlightened confrontation of the problems of art and art criticisr in contemporary society.

COLLEGE OF HUMANITIES
DEPARTMENT OF HISTORY

Matt S. Meier, Ph.D., *Chairman*

Professors: Edwin A. Beilharz, Norman F. Martin, S.J.
Associate Professors: Edward T. Flood, Matt S. Meier
Assistant Professors: George Giacomini, Ramsdell Gurney, Timothy J. O'Keefe, Peter Pierson
Visiting Assistant Professors: Istran Mocsy, Peter Stern
Acting Assistant Professors: Steven M. Gelber, Miles Merwin, David Skinner

Students who wish to make History their major subject, besides completing the niversity and college requirements, must pass twelve courses in History with an verage grade of C. The major program must include four lower division and eight pper division term courses. In order to assure breadth in historical studies the History ıajor must take a minimum of three courses in each of the following broad areas: nited States, European, and non-Western/Latin American History. History 100 is equired of majors in the spring term of the sophomore year. It is strongly recommended ıat History 4 and 5 be taken by all students who have not had a comparable course ı high school.

Honor sections and upper division Individual Study courses are offered. Senior onors students who possess the necessary qualifications may be admitted to graduate eminars by special permission of the chairman and the instructor.

,5. WESTERN CIVILIZATION

A history of Western culture from its beginnings to the present, emphasizing those institutions which have shaped modern civilization.

7,18. THE UNITED STATES

A history of the United States tracing the major political, social, economic and expansionist trends from colonial origins to recent times.

21. EUROPE, 1300-1610: RENAISSANCE AND REFORMATION

Autumn of the Middle Ages; the Renaissance as a cultural movement; the religious upheaval and its consequences; Europe and the Ottoman Empire; overseas expansion and the price revolution; Europe divided.

22. EUROPE, 1610-1789: THE AGE OF REASON AND THE OLD REGIME

Continuation of religious and dynastic struggles; advance of scientific thought and its consequences; Chuch, State and social structure; world empires and balance of power.

23. EUROPE, 1789-1852: AGE OF REVOLUTIONS

European political upheavals emphasizing the French revolution and Napoleonic Europe. The age of Metternich. The industrial revolution and the growth of the urban masses.

24. EUROPE, 1852-1919: NATIONALISM, SOCIALISM, IMPERIALISM

The intensification of nationalism within Europe ending in the First World War. The competition for empire throughout the world. The growth of international socialism.

25. EUROPE, 1919-PRESENT

The post-war settlement and the challenge of fascism. The Russian revolutions. The second world conflict, the cold war, and the retreat of European empires.

51. EAST ASIA

A history of East Asia from its beginnings to recent times, with special reference to China and Japan. Traditional institutions. Impact of Western imperialism. Modernization of Japan. Japanese militarism and Sino-Japanese conflict.

55. AFRICA

An historical survey of Africa with emphasis in the early period on cultures and social organization and in the later period on imperialism, colonialism and the development of African nationalism.

61. LATIN AMERICA

A study of political, social, economic and cultural developments and patterns during the pre-Columbian, colonial and national periods. Emphasis is placed on the relevance of geographical, ethnic and historical phenomena to modern Latin American life.

71. UNITED STATES, 1607-1789

Age of discovery and settlement. Colonial government, economy and society. The American revolution and government under the Articles. The U.S. Constitution.

72. UNITED STATES, 1789-1840

From Federalism to Jeffersonian Democracy. The War of 1812 and the break from Europe. Emergence of sectionalism and the age of Jackson.

73. UNITED STATES, 1840-1880

Early economic development. Expansion and slavery; the road to the Civil War. Reunion and reconstruction, north and south.

74. UNITED STATES, 1880-1929

Industrialization and exploitation. From isolation to empire. The Progressive movement. World War One and its aftermath.

75. UNITED STATES, 1929-PRESENT

The great depression and the New Deal. From Isolation to World War II. The cold war at home and abroad. Trends in recent America. Emphasis on domestic social issues.

31. THE MEXICAN AMERICAN

A broad history of the Mexican American in California and the Southwest. Special emphasis on the period since 1848 and on Texas, New Mexico, and California.

32. THE BLACK AMERICAN

A history of Black Americans from African backgrounds to the present, with emphasis upon those issues of special relevance today. Students will examine and discuss basic elements in Black history.

1.77 HONORS COLLOQUIUM, EUROPE
2.77

Restricted to Honors Program students. Selected problems in European history. The methods of the historian.

7.77 HONORS COLLOQUIUM, UNITED STATES

Restricted to Honors Program students. Selected problems in United States history. The methods of the historian.

00. PRO-SEMINAR IN THE THEORY AND PRACTICE OF HISTORY

Restricted to history majors. Practical and theoretical problems of the historian. A critical study of historical writing in a specific area of history. Research and composition are emphasized.

100.02—EARLY MODERN EUROPE
100.03—RECENT EUROPE
100.04—RUSSIA
100.05—EAST ASIA
100.06—LATIN AMERICA
100.07—UNITED STATES
100.08—CALIFORNIA
100.09—AFRICA

22. THE MIDDLE AGES

Europe from the end of the ancient world to the eve of the era of discoveries. The development of European societies and institutions; the feudal system, the monarchies, the church and the towns. The advancing of the frontiers of Europe. Medieval culture.

123. TOPICS IN EARLY MODERN EUROPE

A course treating some specific aspect of European history from the fourteen through the eighteenth centuries. Topics might include: the Italian Renaissanc the Diplomacy of the Old Regime; Calvinism, the Counter-Reformation an Revolution.

124. SPAIN

Medieval origins of the Spanish kingdoms and the development of Spanis society. The age of discovery and the Siglo de Oro. European power and ove seas empire. Crises of the nineteenth and twentieth centuries.

125. FRANCE IN THE ANCIEN REGIME

An historical study of the development of French society, institutions, thoug and culture from the mid-fifteenth century to 1789; and the political and cultur relations of France with the rest of Europe in these years.

126. FRANCE, 1770-1871

A study of causes, course and consequences of the Revolution and the Napo leonic period; Orleanist, republican and imperialist experiment.

127. FRANCE, 1871-1970

Republican France during the age of materialism, la belle epoque, and the Firs World War; contemporary France during the inter-bellum period, the Secon World War, and the Fifth Republic.

131, 132. ENGLAND

The growth of the English state and constitution. The continental ambitions o England during the Middle Ages. The Tudors and the English reformation.
The constitutional struggles under the Stuart monarchs. The development o the modern English government emphasizing the political reforms of the 19t century. Britain's role in the modern world.

133. BRITISH COMMONWEALTH

A study of the developments in the British Empire in modern times. The rise o the free dominions and the emergence of autonomous states within that system

135. HISTORY OF RUSSIA

From the establishment of the Kievan state through the reign of Peter the Grea Concentration upon Muscovite Russia and Peter.

136. HISTORY OF RUSSIA

From the end of Peter the Great's reign (1725) to the fall of the Russian monar chy in 1917. Nineteenth century political thought and culture stressed.

7. HISTORY OF USSR

The evolution of the modern Soviet state from the Bolshevik revolution to the deposition of Khrushchev. Emphasis on the causes of the Bolshevik revolution, the emergence of the USSR as a world power, and Soviet foreign policy.

3, 139. EASTERN EUROPE

The background and evolution of Poland, Czechoslovakia, Hungary and the Balkan nations; their struggles for independence, and their emergence as states after World War I and the Versailles settlement. A survey in depth of the political, economic, and social development of the East European states during the interwar period; the Second World War and its aftermath.

0. THE CITY IN HISTORY

Studies in the history of selected ancient, Renaissance and modern cities emphasizing the historical development, governmental organizations, social problems and culture.

1, 142. GERMANY

A history of the social, economic, and political development of the German nation. 141 covers Germany from 1792 to 1900; 142 is the history of Germany, 1900 to the present.

4. EUROPEAN DIPLOMATIC HISTORY

A study of the relations of the major European powers since 1870, with emphasis on the economic, political and social forces which influenced these relations.

6. EUROPEAN INTELLECTUAL HISTORY

A study of the main currents of European thought during the period of the Enlightenment and the French Revolution.

7. EUROPEAN INTELLECTUAL HISTORY

A study of the main currents of European thought from Hegel to Marx.

8. EUROPEAN INTELLECTUAL HISTORY

Marxism. Liberalism, traditionalism, and imperialism (1848-1914); socialism and revolutionary movements of the 20th century.

1. THE ISLAMIC WORLD

A history of Islamic Africa and the Near East from the time of Mohammed to the present, emphasizing the political, religious and social developments during the Arab caliphate and the Ottoman empire. The impact of the West and the rise of Arab nationalism.

153, 154, 155. AFRICA

Africa to 1600; Africa 1600-1850; Africa after 1850. These three courses a designed to offer a basic and intensive historical survey of African cultur institutions, and social forces.

156. MODERN JAPAN

Demise of the Tokukawas. Meiji restoration and enlightenment. The libe movement. Socio-economic transformations. Continental expansion. The dem cratic experiment. Meiji-Taisho social movements. Special reference to ult nationalistic movements. The "Greater East Asia War." Post-war recovery.

157. INDOCHINESE PENINSULA: FROM COLONIALISM TO NATIONALISM

A study of political developments from mid-19th century Anglo-French imperi ism to the emergence of national states. Particular reference to indigeno nationalist movements in French colonial areas and the modern transition Thailand.

158. MODERN CHINA

Socio-political changes from the late Ch'ing reform movement. Special emphas on modern revolutionary movements, political history of the Kuomintang peric and the rise of the Chinese Communist Party.

159. INTELLECTUAL HISTORY OF EAST ASIA

Great intellectual traditions of Asia: a historical survey. Introduction to Brah inism, Theravada Buddhism, Mahayana Buddhism, Confucianism, Taoism a Shintoism.

164. THE INTER-AMERICAN COMMUNITY

A history of the political, economic, and social relations between the countri of the two Americas and their activities in regional and world organizations.

165. ARGENTINA

Political, social and economic developments in this leading country of Sou America from pre-Columbian times to the present, with special emphasis on i modern national development.

166. MEXICO

A history of Mexico from the Mayas and Aztecs to the present. Special emphas on those factors of the more recent national period, which have contributed the development of the Mexican national character.

7. BRAZIL

An analytical study of Brazil's past and present: the colonial era, the New World monarchies of Pedro I and II, the Republic. Emphasis on social and economic developments.

3. LATIN AMERICA: THE NINETEENTH CENTURY

A topical development of Latin America from severance of colonial ties through the experiences of early nationhood: conservatism and liberalism, the caudillos and sectionalism, dictatorship and the oligarchies, nationalism and its consequences. Patterns of cultural growth and of foreign affairs.

9. CONTEMPORARY LATIN AMERICA

A topical study of twentieth century political, economic and social life. The dynamics of traditional legacies and reform programs. Ideals and realities of interamerican relations. Cultural characteristics. Present trends and prospects.

1. THEMES IN COLONIAL AMERICAN HISTORY

Selected major topics of the colonial period: Puritanism, imperial relations, the growth of representative institutions.

2. THE RISE OF JEFFERSONIAN DEMOCRACY

The development of the new nation from the Constitution through the War of 1812, emphasizing the formation of political parties, Jeffersonian democracy and cultural nationalism.

3. NATIONALISM AND SECTIONALISM

The social and political reforms and the economic changes between 1815 and the Compromise of 1850, with emphasis on intersectional rivalry.

4. THE UNION IN CRISIS

A study of major aspects of the Civil War and the problems of reconstruction; the abolitionists, the rise of the Republican party; the conduct of the war; the role of the free Negro, constitutional readjustment; the rise of the new south.

6, 177. DIPLOMATIC HISTORY OF THE UNITED STATES

Critical study of the international relations of the United States, and of the economic, political, social and public opinion forces influencing the development of American policy.

8, 179. UNITED STATES SOCIAL AND INTELLECTUAL HISTORY

The main current of constitutional, nationalist and sectional thought. Puritanism, the Great Awakening, and the Enlightenment. Changing attitudes toward Negroes. Muckrakers and the literature of protest. Changing values as molded by or reflected in our literature.

181. THE RISE OF THE CITY

An historical study of the growth and development of the American city an its impact on all aspects of American life.

182. THEMES IN BLACK HISTORY

Selected historical problems of Black America with an emphasis on the perio since 1877.

183. SOCIAL MOVEMENTS IN TWENTIETH CENTURY AMERICA

Popular movements for change, and against it. An investigation of the respons of the American people to the problems of modern industrial society. Labo women's rights, black activism, anti-radicalism, Ku Klux Klan, peace move ment, and others.

184. RECENT UNITED STATES HISTORY

A study of the economic, political and social changes in the United States sinc 1945.

187. THE WEST

The spread of the frontier and the emergence of special western problems. Th west as a force in United States history and culture, and its effects.

189. CALIFORNIA

The history of California, with major attention given to the period following it annexation to the United States.

190. HISTORIOGRAPHY

A critical and historical study of the writings of great historians from antiquit to the present, relating them to the philosophical currents and social realitie of their times; problems in contemporary historiography.

198. COLLOQUIUM

Group meetings for reading, research and discussion of selected historica problems and periods.

198.01—ENGLAND
198.02—EARLY MODERN EUROPE
198.03—RECENT EUROPE
198.04—RUSSIA
198.05—EAST ASIA
198.06—LATIN AMERICA
198.07—UNITED STATES
198.08—CALIFORNIA
198.09—AFRICA

199. INDIVIDUAL STUDY

Directed readings in source materials and pertinent secondary works dealin with selected historical problems.

COLLEGE OF HUMANITIES

DEPARTMENT OF MODERN LANGUAGES AND LITERATURES

Victor B. Vari, Ph.D., *Chairman*

Professor: Victor B. Vari
Associate Professors: Raymond L. Biondi, Andrew I. Rematore
ssistant Professors: Maurice M. Belval, S.J., Heribert Breidenbach, Agustin A. de la Guardia, Kathleen Mary Glenn, Helene J. Hobson, Catherine G. Karr, K-G Seely
Acting Assistant Professors: Robert L. Dawson, Lucille Kerr, David A. Orlando, Christian Van den Berghe
Instructor: Ernesto G. Auerbach
Lecturer: Wolodymar Orenczuk

The degree of Bachelor of Arts may be taken in French, German, Italian and panish. In addition to Language 22, candidates must complete eight upper division ourses in their language.

A minor (four upper division courses) is offered in French, German, Italian and panish.

Honors students in languages may be admitted to any advanced course for which ey have the preparation. They are also eligible for in-course honors projects and dependent studies. Worthy projects may be published in the department's quarterly *olyglot*. Honors students are particularly encouraged to include foreign study in their egree plans.

Bachelor of Arts in French

French majors should complete all lower division requirements before the end of eir sophomore year. An average of at least C must be maintained in both lower and pper division work. The major program includes eight courses of upper division work. rench Applied Linguistics (185) is required of French majors in the teaching credential rogram.

Bachelor of Arts in German

German majors should complete all lower division requirements before the end of eir sophomore year. An overall average of at least C must be maintained in both wer and upper division work. The major program includes a minimum of eight upper ivision courses. Recommended elective courses include English 101 (Introduction to inguistics), and English 102 (Modern Grammar), and History 147 and 148 (European tellectual History).

Bachelor of Arts in Italian

Italian majors should complete all lower division requirements before the end of eir sophomore year. An average of at least C must be maintained in both lower and pper division work. The major program includes a minimum of eight upper division

courses. English 65 (Mythology), English 144, 145 (Comparative Literature) ar Renaissance History are recommended.

Bachelor of Arts in Spanish

Spanish majors should complete all lower division requirements before the er of their sophomore year. An average of at least C must be maintained in both low and upper division work. The major program includes eight upper division course Courses in the history of Latin America and the history of Spain are recommende Applied Linguistics (175, 176) is required of Spanish majors in the teaching credenti program.

Language Laboratory

During the first four courses in French, German, Italian, and Spanish, and durir the first two terms of Russian, students are required to use language laboratory leve three machines approximately half an hour a day to increase their skills in listenir comprehension, pronunciation, and speaking. These listen-respond record exercise are supplementary to the required hours of classroom work.

High School Credit and Placement

Students entering from high school with credit for two years of a language w be placed in Elementary Language 2; those with three years will be placed in Languag 21; and those with four years, in Language 22. Students may enroll in a higher cours with the permission of the instructor. Proficiency examinations will be given all studen continuing a language begun before their admission to the University.

French

1. ELEMENTARY FRENCH I

Development of skills in understanding, speaking, reading and writing moder French. Daily work in language laboratory required.

2. ELEMENTARY FRENCH II

Continuation of 1.

21. INTERMEDIATE FRENCH I

Completion of Elementary texts; introduction of Intermediate reading, cor versation and composition.

22. INTERMEDIATE FRENCH II

Review of spoken and written French, with progressive readings in French prose

0. ADVANCED FRENCH I

Intensive reading, speaking and composition. Required of all majors and minors. Not applicable to the MAT in French.

1. ADVANCED FRENCH II

Introduction to *explication de texte.* Intensive conversation. Required of all majors and minors. Not applicable to the MAT in French.

0. MIDDLE AGES: *Moyen Age*

Readings in the Medieval literature—from *Roland* to Villon.

0. SIXTEENTH CENTURY: *Renaissance*

Readings in Rabelais, the Pléiade poets and Montaigne.

0. SEVENTEENTH CENTURY I: *Grand Siècle*

Study of the intellectual currents surrounding the classic period.

1. SEVENTEENTH CENTURY II: *Théâtre Classique*

Study of Corneille, Racine and Molière.

0. EIGHTEENTH CENTURY: *Philosophes*

Study of the Enlightenment writers, with emphasis on Voltaire, Rousseau and Diderot.

0. NINETEENTH CENTURY I: *Poésie et Théâtre*

Studies in the poetic and dramatic movements of the Nineteenth Century, with emphasis on the Romantics and the Symbolists.

1. NINETEENTH CENTURY II: *Roman*

Stendhal, Balzac, Flaubert, Zola and others, with emphasis on the Realist and Naturalist movements.

70. TWENTIETH CENTURY I: *Moderne*

Humanist currents in the modern literature: Proust, Gide, Mauriac and others to 1940.

71. TWENTIETH CENTURY II: *Contemporain*

Continuation of themes in 170: Malraux, Sartre, Camus and others to the *Nouveau Roman.*

177. CINEMA I

French origins and development of the cinema, with representative screenings.

178. CINEMA II

Variable studies of films of individual or related *metteurs en scène*. Electi credit only; may not be counted for major credit.

180. TOPICAL SEMINARS

Variable topics in the language and literature. Under advice, may be taken a number of times for credit, but only once for major credit. Not applicable the MAT in French.

185. FRENCH APPLIED LINGUISTICS

Aspects of French phonology, morphology and syntax. Designed for prospecti language teachers. Prerequisite to the MAT in French.

190. DIRECTED READING

May be taken only by permission of the department chairman.

German

1. ELEMENTARY GERMAN I

Development of skills in understanding, speaking, reading and writing mode German. Daily work in language laboratory required.

2. ELEMENTARY GERMAN II

A continuation of 1.

21. ELEMENTARY-INTERMEDIATE GERMAN I

Completion of Elementary German, followed by short-stories, progressive exe cises in conversation and advanced grammar.

22. INTERMEDIATE GERMAN II

A continuation of 21.

100. ADVANCED GERMAN READING, COMPOSITION AND CONVERSATION I

Required of all German majors and minors. Completion or equivalent knowledg will admit students to courses in German Literature.

101. ADVANCED GERMAN READING, COMPOSITION AND CONVERSATION II

A continuation of 100. Required of all majors and minors.

110. GERMAN CIVILIZATION I

A cultural history of the German speaking countries from the beginning to 1650.

120. EARLY MASTERPIECES OF GERMAN LITERATURE

130. THE CLASSICAL AGE

140. NINETEENTH CENTURY LITERATURE I: 1800-1830

141. NINETEENTH CENTURY LITERATURE II: 1830-1900

150. TWENTIETH CENTURY GERMAN LITERATURE

151. MODERN DRAMA

160. THE GERMAN NOVELLE

161. SURVEY OF GERMAN LYRIC POETRY

170. SPECIAL TOPICS

Special authors or themes. May be retaken for credit.

190. DIRECTED READING

With permission of the department chairman.

Italian

1. ELEMENTARY ITALIAN I

Development of skills in understanding, speaking, reading, and writing modern Italian. Daily work in language laboratory required.

2. ELEMENTARY ITALIAN II

A continuation of 1.

21. INTERMEDIATE ITALIAN I

Review of fundamentals of spoken and written Italian. Progressive readings reflecting Italian culture and values. Progressive exercises in conversation and composition. Prerequisite: 2 or equivalent.

22. INTERMEDIATE ITALIAN II

A continuation of 21.

100. ADVANCED ITALIAN COMPOSITION, READING AND CONVERSATION I

Required of all majors and minors.

101. ADVANCED ITALIAN COMPOSITION, READING AND CONVERSATION II

A continuation of Italian 100. Required of all majors and minors.

120. SURVEY OF ITALIAN CULTURE AND CIVILIZATION I

From its origin to the "settecento."

121. SURVEY OF ITALIAN CULTURE AND CIVILIZATION II

From the "ottocento" to the present.

130. DANTE, LA DIVINA COMMEDIA (INFERNO and PURGATORIO) I

131. DANTE, LA DIVINA COMMEDIA (PURGATORIO and PARADISO) II

140. DUECENTO, TRECENTO

Emphasis on Dante's minor works. Petrarch's poetry, and Boccaccio's Decameron.

150. QUATTROCENTO, CINQUECENTO (RINASCIMENTO)

Important trends in the literary masterpieces of the Renaissance—significant works of Ariosto, Tasso, Leonardo, Machiavelli, Lorenzo de Medici, Poliziano Castiglione.

160. SETTECENTO

The salient works of Vico, Goldoni, Parini, and Alfieri.

170. OTTOCENTO

The works of Foscolo, Leopardi, Manzoni, Carducci, Pascoli and Verga will be stressed.

180. NOVECENTO

Italian Literature of Twentieth Century with main trends in poetry, drama and the novel, from Pirandello to the present.

190. DIRECTED READING

May be taken only by permission of the department chairman.

Russian

1. ELEMENTARY RUSSIAN I

Drill in pronunciation, elements of grammar and vocabulary. Progressive exercises in reading, writing, and speaking. Daily work in language laboratory required.

2. ELEMENTARY RUSSIAN II

A continuation of 1.

21. INTERMEDIATE RUSSIAN I

Review of grammar and syntax. Reading of original authors. Exercises in translation, composition, and conversation. Prerequisite: 2 or equivalent.

22. INTERMEDIATE RUSSIAN II

A continuation of 21.

Spanish

1. ELEMENTARY SPANISH I

Development of skills in understanding, speaking, reading and writing modern Spanish, in that order. Daily work in language laboratory required.

2. ELEMENTARY SPANISH II

A continuation of 1.

21. INTERMEDIATE SPANISH I

Review of fundamentals of spoken and written Spanish. Progressive readings reflecting Hispanic culture and values. Progressive exercises in conversation and composition. Prerequisite: 2 or equivalent.

22. INTERMEDIATE SPANISH II

A continuation of 1.

100. ADVANCED SPANISH I

Composition, conversation and grammar. Introduction to literary analysis. Required of all majors and minors. Prerequisite: 22.

101. ADVANCED SPANISH II

A continuation of 100. Required of all majors and minors.

105. SPANISH PRONUNCIATION AND INTONATION

Systematic study of the pronunciation and intonation of modern Spanish. In tended for majors, minors and prospective teachers needing further perfectio of these skills. Individual diagnoses. Daily laboratory recording exercises. Pre requisite: 22 or equivalent.

Completion of 100, 101 or evidence of equivalent preparation will admit student to courses in literature.

120. SURVEY OF SPANISH LITERATURE I

Readings in Spanish literature from the beginnings to 1680.

121. SURVEY OF SPANISH LITERATURE II

Readings in Spanish literature from 1680 to present.

130. SURVEY OF LATIN-AMERICAN LITERATURE I

Readings in Latin-American literature from the Colonial period to about 1888

131. SURVEY OF LATIN-AMERICAN LITERATURE II

Readings in Latin-American literature from the Modernista movement to the present.

140. MODERN LATIN AMERICAN LITERATURE I

Study of major Latin American writers of the late nineteenth and early twentieth centuries, with emphasis on the novel. Given in alternate years. To be offered in 1970–71.

141. MODERN LATIN AMERICAN LITERATURE II

A continuation of 140, but may be taken separately. Given in alternate years

145. CONTEMPORARY LATIN AMERICAN LITERATURE I

Study of major Latin American writers of the mid-twentieth century. Given in alternate years. To be offered in 1970–71.

146. CONTEMPORARY LATIN AMERICAN LITERATURE II

A continuation of 145, but may be taken separately. Given in alternate years.

150. TWENTIETH CENTURY SPANISH LITERATURE I

A study of the major writers of Spain from 1898 to 1936.

151. TWENTIETH CENTURY SPANISH LITERATURE II

A study of the major writers of Spain from 1936 to the present.

60. THE SPANISH GOLDEN AGE I

Major Spanish works of the sixteenth and seventeenth centuries, with particular emphasis on nondramatic literature.

61. THE SPANISH GOLDEN AGE II

Major works of the seventeenth century, with emphasis on the drama.

65. CERVANTES

Readings from *Don Quijote* and the *Novelas ejemplares*.

75. SPANISH APPLIED LINGUISTICS I

Detailed scientific analysis of the phonology of modern Spanish. Contrastive analysis of Spanish and English sound systems. Designed for prospective language teachers.

76. SPANISH APPLIED LINGUISTICS II

Detailed scientific analysis of the morphology and syntax of modern Spanish. Contrastive analysis within the Spanish structure system, and between Spanish and English structure systems. Prerequisite: 175.

90. DIRECTED READING

May be taken only by permission of the department chairman.

COLLEGE OF HUMANITIES

DEPARTMENT OF MUSIC

Roger Nyquist, D.Mus., *Chairman*

Assistant Professors: Roger Nyquist, Lynn Shurtleff
Artist in Residence: Charles Lampkin

The University offers a varied program of academic and applied electives in music, designed to serve students of differing musical backgrounds. The courses are designed to develop an understanding and appreciation of many types, styles, and periods of music. The program has as its major purpose the development of creative listeners.

1. INTRODUCTION TO MUSIC

How to listen to music; art of music and its materials; instruments and musical forms; music of the 17th through 20th centuries.

2. CHORAL LITERATURE

Sacred and secular music from 16th century to the present. I. Smaller forms: motets, anthems. II. Larger forms: oratorios, cantatas.

3. HISTORY OF OPERA

From 1600 to the present.

4. HISTORY OF KEYBOARD MUSIC

From about 1500 to the present.

5. ETHNIC MUSIC

This course surveys the origins, growth and development of the Folk Music of the United States from the Colonies to the present.

6. HISTORY OF JAZZ

This course concerns itself with the origins, growth and development of Jazz, its sociological importance and influence on composers of serious music.

10. THEORY OF MUSIC I

Basic terminologists and problems of notation melody, rhythm, harmony and their relationship to musical form. Lecture and drill in writing melodies, sight reading, ear training and analysis.

11. THEORY OF MUSIC II

Continuation of 10. Primary triadic harmonies; basic musical forms; introduction to Orchestration. Lecture and drill in sight singing and analysis.

2. **THEORY OF MUSIC III**

Continuation of 11. Secondary triadic harmonies; form and analysis; Orchestration; basic compositional techniques. Lecture and drill in sight singing, ear training, analysis and composition.

9. **MUSIC OF THE RENAISSANCE**

Polyphonic Music of the 15th and 16th centuries. Prerequisite: 1.

0. **MUSIC OF THE BAROQUE ERA**

A history of the important musical developments from 1600 to 1750. Prerequisite: 1.

1. **MUSIC OF THE CLASSIC PERIOD**

A history of the important musical developments from 1750 to 1830. Prerequisite: 1.

2. **MUSIC OF THE ROMANTIC PERIOD**

A history of the important musical developments from 1800 to 1910. Prerequisite: 1.

3. **MUSIC OF THE 20TH CENTURY**

A history of the important musical developments from 1900 to the present. Prerequisite: 1.

5. **SELECTED STUDIES**

Subject matter open. Course is designed to explore special areas of musical interest. Offered only when sufficient number of students express interest in a suitable topic.

0. **SACRED MUSIC**

History, analysis and listening to selected works from chant to the present.

1. **UNIVERSITY CHORUS**

Open to selected students for preparation and performance in concert of works of the significant choral literature. Credit available only after three terms of membership.

6. **PRIVATE INSTRUCTION**

Credit available for private lessons in piano, organ, voice and orchestral instruments. An additional fee will be paid directly to the instructor during the first week of class.

119. MUSIC OF THE RENAISSANCE

120. MUSIC OF THE BAROQUE ERA

121. MUSIC OF THE CLASSIC PERIOD

122. MUSIC OF THE ROMANTIC PERIOD

123. MUSIC OF THE 20TH CENTURY

125. SELECTED STUDIES

Subject matter open. Course is designed to explore special areas of musical interest. Offered only when sufficient number of students express interest in a suitable topic.

141. UNIVERSITY CHORUS

Open to selected students for preparation and performance in concert of works of the significant choral literature. Credit available only after three terms of membership.

146. PRIVATE INSTRUCTION

Credit available for private lessons in piano, organ, voice, and orchestral instruments. An additional fee will be paid directly to the instructor during the first week of class.

COLLEGE OF HUMANITIES
DEPARTMENT OF PHILOSOPHY

Peter B. Manchester, A.B., *Acting Chairman*

Professor: Austin J. Fagothey, S.J.
Associate Professor: James W. Felt, S.J.
ssistant Professors: Robert B. Buckenmeyer, Raymond L. Dennehy, Timothy Fallon, J., William O. Kerr, Jr., Leonard S. Lyons, Satinder Nath Mahajan, Myra M. Milburn, John M. Shanks, S.J. (on leave of absence 1970–71)
Acting Assistant Professors: Joseph C. Burgess, George Kennard, S.J., Peter B. Manchester

In the College of Humanities, the University of Santa Clara offers a four-year ndergraduate program leading to the Bachelor of Arts degree with philosophy as the ajor emphasis.

Students making philosophy their major, besides fulfilling the general requirements the University and the College of Humanities, have the following departmental reuirements to complete:

At least four lower division courses in Philosophy, including 8 and 9.

At least eight upper division courses in Philosophy.

An overall C average must be maintained in these courses.

Each philosophy major will be assigned an Academic Advisor from among the epartment's staff at the time he declares his major. Thereafter, he is free to change s advisor as he becomes better acquainted with the Department.

With his Advisor, he prepares a program of study oriented to his own interests in oth philosophy and the other disciplines represented in the University. The student ajoring in Philosophy ordinarily has ten non-philosophy electives in the upper division nd he is expected to make choices for these courses which are coherent with his phisophical interests and career plans. Specific Departmental requirements are flexible nd include only the following general guidelines:

History of Philosophy: 8 and 9 are required and 10 strongly recommended.

Logic: At least one course, selected from among 3, 109, or (with Advisor's recomendation) Mathematics 32.

Ethics: At least one course, chosen from among 5, 103, 130, or (with Advisor's commendation) other upper division courses which treat ethical topics.

Ontology: At least one course, chosen from among 7, 102, or recommended upper vision elective.

All courses offered by the Department are available for satisfying University and ollege requirements, except that as a general prerequisite two lower division courses ust be taken before enrolling in any upper division course.

Lower Division

3. LOGIC

Introduction to logic. Discussion of the nature and structure of arguments, an introduction to the criteria for their evaluation. Exploration of some philosophica problems of logic.

4. MAN IN THE WORLD

Philosophical reflection on essential aspects of human existence, such a temporality and mortality, knowledge and love, responsibility and freedom, valu and evil, the desire for transcendence.

5. PROBLEMS IN ETHICS

Introduction to Ethics through the exploration of current ethical questions o philosophical importance, with attention to concepts of value, virtue, obligatior and responsibility.

6. THE PROBLEM OF KNOWLEDGE

Introduction to the Theory of Knowledge through reflection on selected problems which arise in the foundation of the sciences, in ethical, or in religious thought.

7. PROBLEMS IN METAPHYSICS

Introduction to the philosophy of being, through critical study of selected fundamental problems, among them: the existence of God, the explanation of nature, being and becoming, cause and effect.

8. ANCIENT AND MEDIEVAL PHILOSOPHY

The beginnings of Western philosophy studies in representative writers of the Greek and medieval traditions, with attention to their historical relationships to one another and to contemporary thought.

9. EARLY MODERN PHILOSOPHY

Philosophy during the period of the Renaissance, the Enlightenment, and the awakening of science in Europe. Problems include the scope and value of human knowledge, methods of inquiry, and the nature of the mind.

10. MODERN AND CONTEMPORARY PHILOSOPHY

Philosophy in the Nineteenth Century, with an introduction to contemporary schools of thought. Discussion of the concepts of history, society and political order, and the nature of individuality. Prerequisite: 9.

20. ORIENTAL PHILOSOPHY

A general introduction to philosophies and cultures of the East, especially of India, China, and Japan. Emphasis on the concepts and values which permeate the ways of thinking and living of Eastern peoples.

Upper Division

Systematic Courses

2. ONTOLOGY

Introduction to the classical problems and historically important contributions in formal theory of being, with attention to unresolved disputes, and often with focus on particular traditions such as Thomism, German Idealism, etc.

3. ETHICAL THEORY

An examination of the possibility and nature of ethical knowledge as found in various philosophical approaches to the moral life, and application of these concepts to current moral problems.

4. EPISTEMOLOGY

Formal study in depth of the conditions of knowledge, with emphasis on the concepts of "cognition" and "truth."

9. DEDUCTIVE AND INDUCTIVE LOGIC

Examination of a formal symbolic system of deductive logic, and an introduction to the principles of inductive logic with special attention to the problem of confirming scientific hypotheses.

Special Problem Areas

12. PHILOSOPHIES OF HISTORY

A philosophical study and critical analysis of diverse explanations of history in terms of rational patterns. Methodology of history and categories of historical explanation.

17. PHILOSOPHY AND LANGUAGE

An introduction to philosophical considerations concerning the nature of language and meaning. Either historical, systematic, problematic, or linguistic approaches will be emphasized. Prerequisite: Instructor's permission.

14. PHILOSOPHY OF SCIENCE

Philosophical considerations involved in the presuppositions and methods of empirical science.

15. PROCESS PHILOSOPHY

Introduction to the process viewpoint which describes being in terms of creative becoming, with a mutual, ongoing relationship between God and the world. Study of Bergson, Whitehead, and contemporary writers.

130. SOCIAL ETHICS

Application of general moral principles to specified phases of human living. Th ethics of society.

136. PHILOSOPHY OF LAW

The sources and purposes of positive law, its foundations and derivations, an its relation to ethics and society.

138. POLITICAL PHILOSOPHY

A critical examination of modern political theories and of the problems of polit cal society, such as individualism in its tension with the public good, etc.

141. PHILOSOPHY OF RELIGION

Introduction to the critical study of the conceptual aspects of religious though including such topics as: the phenomenon of religion, agnosticism and mystic ism, theories of immortality, evil, and the creative process.

142. COMPARATIVE PHILOSOPHY

A comparative study of various treatments accorded to topics of philosophica interest in the Indian, Japanese, and Western traditions. Topics include the con cept of Self and destiny of man, the role of morality, art and religion in th formation of metaphysical beliefs.

Philosophical Movements

156. MEDIEVAL PHILOSOPHERS

Reading and interpretation of selected texts of medieval philosophers, wit special attention to the writings of St. Thomas Aquinas. Attempts to disengag what is relevant and irrelevant to our age.

160. RATIONALISM AND EMPIRICISM

The rationalism of Descartes, Spinoza, and Leibniz, as contrasted with th empiricism of Locke, Berkeley, and Hume. An intensive study of some of these philosophers' writings.

165. AMERICAN PHILOSOPHY

Reading, interpretation, and discussion of selected major works of major Amer ican thinkers. Critical evaluation. Their influence on American culture.

167. ANALYTIC PHILOSOPHY

Introduction to the major themes, methods, and historical origins of analytic philosophy. Examination and assessment of some of the writings of the logica positivists, Russell, Moore, Wittgenstein, and contemporary analytic philosophy

10. PHILOSOPHY OF COMMUNISM

Critical analysis of the philosophical tenets of Marxism and subsequent Communist theory. Dialectical materialism.

11. EXISTENTIALISM

The existentialist movement in European thought. Kierkegaard, Heidegger, Jaspers, Sartre, and Marcel.

12. PHENOMENOLOGY

Comprehensive historical introduction to the phenomenological movement in Europe after Husserl, and detailed introduction to phenomenological method and its importance in the natural and social sciences.

15. INDIAN PHILOSOPHY

An exposition of the philosophies of the Upanishads and the six systems. Reflection on the treatment of philosophical issues, presuppositions of, and patterns of argument in Indian philosophical thinking.

13. AESTHETICS

A study of the philosophy of art from Plato through Kant, Hegel, Cassirer and Suzanne Langer leading to an enlightened confrontation of the problems of art and art criticism in contemporary society.

Philosophers in Depth

11. PLATO AND ARISTOTLE

Reading, interpretation, and discussion of some of the major writings of these two authors. Critical evaluation in the context of the relation of one another and to subsequent Western thought.

13. AUGUSTINE

A study of the relation between body and soul, philosophy and religion according to the works of Augustine.

15. KANT

Reading, analysis, discussion of some of the major works of Kant and his immediate successors.

17. WHITEHEAD

Reading and analysis of the main philosophic writings of Alfred North Whitehead, with a view toward an understanding of process philosophy and its contemporary influence.

189. HEIDEGGER

Reading and analysis of the argument in *Being* and *Time*, with an introducti to the later work: toward a critical appreciation of Heidegger's ontology and influence.

195. WITTGENSTEIN

Exposition and analysis of the major themes in Wittgenstein's *Tractatus Logic Philosophicus* and *Philosophical Investigations*. Prerequisite: 3 or 109.

198. SENIOR THESIS

199. DIRECTED STUDY

COLLEGE OF HUMANITIES
DEPARTMENT OF RELIGIOUS STUDIES

Theodore Mackin, S.J., S.T.D., *Chairman*

Associate Professor: Theodore Mackin, S.J.
Assistant Professors: John F. Dullea, S.J.; Robert Giguere, S.S.; Roger D. McAuliffe, S.J Stuart D. McLean; James E. Sweeters, S.J.; Salvatore Tassone, S.J.
Acting Assistant Professors: Daniel O. Dugan; Peter Manchester
Lecturers: Rabbi Allen P. Krause; John Petale-Amato; Tennant C. Wright, S.J.

General Requirements

All undergraduate students entering the University in the first year are required t complete three courses in the Department of Religious Studies, at least one of whic must be completed after the sophomore year (or during one of the final two years Students entering the University in the second year must complete two courses, an one of these during the final two years; those entering in the third or fourth year, on course in either year.

Two kinds of sequences of courses may be chosen, although neither is obligatory One sequence answers to the needs of students wishing a continued education i Roman Catholic theology, the other a denominationally neutral sequence—with the tw overlapping at some points. If the student chooses one of these sequences, he is urge to seek the advice of the Religious Studies faculty about which three courses are mos suitable for him.

Roman Catholic Sequence

1 Introduction to Religious Studies
2 Introduction to Old Testament
3 Introduction to New Testament
10 Religious Symbol and Myth
20 Historical Theology
30 Theology of the Church
40 Christian Apologetics
60 Christian Ethics
121 Trinitarian Theology
122 The Person of Christ in the New Testament
138 The Church in the Vatican Councils
133 The Liturgy of the Sacraments
134 The Liturgy of the Eucharist
145 Modern Christian Social Morality
149 Theology of Marriage
152 The Theological Method of Aquinas
181 History of Religious Art in the West, Part I
182 History of Religious Art in the West, Part II
183 Art and Ritual
187 Religion and Art in the Documents of Vatican II

Neutral Sequence

1 Introduction to Religious Studies
2 Introduction to Old Testament
3 Introduction to New Testament
10 Religious Symbol and Myth
20 Historical Theology
30 Theology of the Church
50 World Religions
60 Christian Ethics
121 Trinitarian Theology
122 The Person of Christ in the New Testament
130 Theology of Hope
142 Christian Mysticism
144 Psychology of Religion
145 Modern Christian Social Morality
147 Questions in Contemporary Protestant Ethics
154 Existential Theology
157 God in Contemporary Thought
160 Sociology of Religion
162 Theology and Social Change
163 Theology and Politics
183 Art and Ritual
188 Theology in Contemporary Literature

Note that these sequences do not list all the courses offered by the department.

The Major in Religious Studies

Students may earn the Bachelor of Arts degree with Religious Studies as the major subject. Within Religious Studies four areas of concentration are available: Th Scriptures, Theology, Religion and Society, and Religion and the Arts. In consultatic with his program advisor the student must elect one of these areas early enough t complete the requirements for graduation in that area. Ordinarily this should be n later than the winter term of the sophomore year.

In addition to the requirements in general education for students in the Colleg of Humanities, the following are specific for students completing the major in Religiou Studies:

Humanities: two courses in history and/or literature.

Philosophy: the three-course sequence in History of Philosophy (Ancient an Medieval Philosophy; Early Modern Philosophy; Modern and Contemporary Philosophy Ontology (ordinarily completed in junior or senior year).

Fine Arts: two courses.

Foreign Language: the student must complete, by the end of the fall term of senic year, a reading proficiency test, administered by the Department of Religious Studie in one classical or modern language.

Twelve free elective courses (fewer if formal courses in language are needed t prepare for the reading proficiency test, or if the student is otherwise held to com plete the language requirement for the College of Humanities).

To earn the bachelor's degree the student must maintain a minimum average of in both the courses pertaining to his major program and in those belonging to th program in general education.

Requirements in the Areas of Concentration

Area I: Concentration in the Scriptures

A) A core of four courses from among the following, selected according to th student's background in religious education:
   - 1 Introduction to Religious Studies
   - 2 Introduction to the Old Testament
   - 3 Introduction to the New Testament
   - 10 Religious Symbol and Myth
   - 20 Historical Theology
   - 30 Theology of the Church
   - 40 Christian Apologetics
   - 50 World Religions
   - 60 Christian Ethics

B) the following upper division courses:
   - 100 Old Testament: The Law
   - 101 Old Testament: The Prophets
   - 102 Old Testament: The Writings
   - 106 New Testament: The Synoptic Gospels
   - 107 New Testament: The Pauline Writings
   - 108 The Johannine Writings

C) An upper division course in systematic theology chosen in consultation wit the program advisor.

A course in directed reading and research, during junior or senior year, within the area of concentration.

Area II: Concentration in Theology

A core of four courses from among those listed above under Area I, selected according to the student's background in religious studies.
The following upper division courses:
111 Questions in Patristic Theology
112 Questions in Medieval Theology
113 Questions in Reformation Theology
114 Questions in Post-Enlightenment Theology
An upper division course in Scripture.
An upper division course in systematic theology.
A course in directed reading and research, during junior or senior year, within the area of concentration.
An upper division elective course.

Area III: Concentration in Religion and Society

A core of four courses from among those listed above under Area I, selected according to the student's background in religious education. One of these must be a course in Scripture (2 or 3).
A selection of six upper division courses from among the following:
133 The Liturgy of the Sacraments
144 Psychology of Religion
145 Modern Christian Social Morality
147 Questions in Contemporary Protestant Ethics
149 Theology of Marriage
160 Sociology of Religion
162 Theology and Social Change
163 Theology and Politics
166 Theology of Non-Violence
An upper division course in systematic theology chosen in consultation with the program advisor.
A course in directed reading and research, during junior or senior year, within the area of concentration.

Area IV: Religion and the Arts

A core of four courses from among those listed above under Area I, selected according to the student's background in religious education. One of these must be a course in Scripture (2 or 3).
A selection of six upper division courses from among the following:
133 The Liturgy of the Sacraments
144 Psychology of Religion
180 Theological Aesthetics
181 History of Religious Art in the West, Part I: Early Christian to Gothic Periods
182 History of Religious Art in the West, Part II: Renaissance to Modern Periods

183 Art and Ritual
184 Religion, Theatre and the Church
187 Religion and Art in the Documents of Vatican II
188 Theology in Contemporary Literature
189 The Pre-Columbian Religions of Mexico

C) An upper division course in systematic theology chosen in consultation wit the program advisor.

D) A course in directed reading and research, or in artistic production, durin junior or senior year, within the area of concentration.

1. INTRODUCTION TO RELIGIOUS STUDIES

A study of the origin of religious learning in revelation and the faith-response, o the ways of knowing according to the different religious forms (e.g., Hinduism Judaism, Muslimism, Christianity); of the role of the religious community in th knowledge of divine things.

2. INTRODUCTION TO THE OLD TESTAMENT

A survey of the history of the people of Israel from the exodus through the pos exilic period to the Christian era, with particular attention on the formation of th Old Testament literature and on the developing form and content of the people' religious belief and conduct.

3. INTRODUCTION TO THE NEW TESTAMENT

A study of the formation of the New Testament literature in the first generation of the Christian community; an interpretation of the literary forms used by th community; an examination of the form and principal content of the primitiv belief.

10. RELIGIOUS SYMBOL AND MYTH

Introduction to the major contemporary interpretations of the place of myth an of symbolic discourse in religious expression, together with discussion of im portant selections from original mythological literature, particularly that of th ancient Near East.

20. HISTORICAL THEOLOGY

The dogmatic formulation of the Christian faith studied in its developmen principally in the great theological crises and their conciliar treatment. The thre basic themes pursued: God, Christ, man.

30. THEOLOGY OF THE CHURCH

A study of the development of the concept of religious community, especiall in the Jewish-Christian tradition; an analysis of the most recent Christian inte pretation of the Church.

). CHRISTIAN APOLOGETICS

An *apologia*—in the classical sense of a "rational account"—of the Christian religious commitment. The two central problems: faith and Church. The distinctive quality of the Christian commitment, faith as response to revelation, the rational presuppositions and implications of faith. The relationship of faith to the Church. The nature and structure of the Christian church. The ecumenical question.

). WORLD RELIGIONS

A study of the religions of the Ancient Far East and Middle East, and of the principal contemporary non-Christian religions: Buddhist, Hindu, Jewish and Islamic.

). CHRISTIAN ETHICS

The dynamics of Christian conduct and the moral implications of the Christian commitment. The formulation of the principles of a Christian ethic; their application to selected areas of moral conduct in contemporary life, e.g. to wealth and poverty, violence and non-violence, war and peace, inter-personal relations.

0. OLD TESTAMENT: THE LAW

A study of the five books of Moses according to the Hebrew tradition that make up the Law, with emphasis on the contributions of the Yahwist, Elohist, Priestly and Deuteronomic traditions. An analysis of the meaning of history in these traditions and of their religious messages and theological implications.

1. OLD TESTAMENT: THE PROPHETS

A study of the Former Prophets and the Latter Prophets according to the Hebrew tradition. An analysis of the meaning of prophet in the religious community, Israel.

2. OLD TESTAMENT: THE WRITINGS

A study of those books making up the Writings of the Hebrew tradition, as well as the added books of the deutero-canonical Wisdom Literature of the Septuagint. Selected readings in the inter-testamental writings and an inquiry into their influence on early Christianity.

6. THE SYNOPTIC GOSPELS

A study of the Synoptic Gospels, of their historical formation and of their literary forms. An analysis of Salvation History as contained in these sources.

7. THE PAULINE WRITINGS

A study of the formation of the New Testament books attributed to Pauline authorship, of their vocabulary, imagery and religious concepts. An analysis of the Pauline theology.

108. THE JOHANNINE WRITINGS

A study of the formation of the fourth Gospel, of the Johannine letters and of t Apocalypse (Book of Revelations); of their vocabulary, imagery and theologi concerns.

111. QUESTIONS IN PATRISTIC THEOLOGY

A study of selected theological issues in the age of the great Eastern a Western Fathers of the Church.

112. QUESTIONS IN MEDIEVAL THEOLOGY

A study of the historical origins and development of medieval theology; a stu of selected disputed questions, especially those concerning the relationship faith and reason.

113. QUESTIONS IN REFORMATION THEOLOGY

The origins of Reformation theology in early Nominalism; the principal religiou theological issues in the Protestant Reformation, through the seventeenth centu and into the Age of Enlightenment.

114. QUESTIONS IN POST-ENLIGHTENMENT THEOLOGY

Christian theology since the Enlightenment until the early twentieth centu the influence of romanticism, rationalism and the new scientism.

121. TRINITARIAN THEOLOGY

A systematic study of the origins in Scripture of Christian belief in a trinity personhood in God; a theological elaboration of the belief drawn from t Fathers and later theologians; an analysis of the Trinitarian controversies the early Christian centuries.

122. THE PERSON OF CHRIST IN THE NEW TESTAMENT

A systematic study of the origins in Scripture of Christian belief in the pers and natures of Christ, and of his work of redeeming.

126. THEOLOGY OF THE SPIRIT

A systematic study of the spirit of God in Old Testament origins, through t development of belief in the Holy Spirit of Father and Son in the New Testame the theological elaboration of the belief drawn from the Fathers and theologian

130. THEOLOGY OF HOPE

A study of the dimension of promise-and-fulfillment inherent in Christian livi and dying in anticipation of the arrival of God's kingdom. The existential tensi between Christian possibility and Christian act.

3. **THE LITURGY OF THE SACRAMENTS**

A study of general sacramental theory; of the relationship of the Christian community to sacramental action; of the development of the cultural forms of sacramental action (except for that of the Eucharist).

4. **THE LITURGY OF THE EUCHARIST**

(A companion of the preceding course.) A study of the nature of liturgical action, specifically of the meaning and historical development of the Eucharist. Comparative liturgy of East and West, and among the Christian churches of the West. The principles of continual liturgical development.

8. **THE CHURCH IN THE VATICAN COUNCILS**

A study of the developing Roman Catholic theology of the Church contained in both Vatican I and Vatican II's "Dogmatic Constitution on the Church" and in Vatican II's "Pastoral Constitution on the Church in the Modern World."

1. **CHRISTIAN SPIRITUALITY**

A study of Christian asceticism and mysticism; of classical authors and schools of spirituality.

2. **CHRISTIAN MYSTICISM**

A study of selected writers in the contemplative and mystical tradition of Western Christianity.

3. **CONTEMPLATION IN THE EASTERN AND WESTERN TRADITIONS**

A study of selected writings from the contemplative non-Christian traditions of the East; a comparison of their thought and experiences with those of the contemplative and mystical traditions of Western Christianity.

4. **PSYCHOLOGY OF RELIGION**

A study of the phenomenon of religion as expressed in the various religious literatures, using both the psychological reflection on religion and the methods of analysis by psychologists, classical and contemporary.

5. **MODERN CHRISTIAN SOCIAL MORALITY**

A study of the social encyclicals of the popes, Leo XIII, Pius XI, Pius XII, John XXIII and Paul VI; of Vatican II's "Pastoral Constitution on the Church in the Modern World"; of contemporary Protestant concern for the Christian reform of national and world society, especially in the relevant documents of nation and world councils of churches.

147. QUESTIONS IN CONTEMPORARY PROTESTANT ETHICS

A study of a select number of contemporary Protestant theologians as the thought relates to such problems as the new sexual morality, the humanizatic of cities, political morality, and the style of life; special considerations of th thought of Tillich, Barth, H. R. Niebuhr, Cox and Ramsey.

149. THEOLOGY OF MARRIAGE

A study of marriage Christianly understood from the Scriptures and from recei Catholic writing, and from a humane psychology of the human person. A surve of Roman Catholic Canon Law on marriage.

151. PHILOSOPHICAL THEOLOGY

A study of the intellectual mode of knowing proper to theology, of the differin understandings of this knowing according to different theories of knowledg Platonic and Neo-Platonic, Aristotelian-Thomist, Cartesian and Kantian, Exi tentialist, Analytic, Mythopoeic.

152. THE THEOLOGICAL METHOD OF AQUINAS

A study of the theological method of Thomas Aquinas and a review of his majc theological works in their historical context; an analysis of typical texts; cor temporary evaluations and new directions in Thomistic studies.

154. EXISTENTIAL THEOLOGY

A study of the influence of existentialist thinkers from the time of Kierkegaar on current religious thought. The various developments of the existentialis dimension in the writings of Reinhold Niebuhr, Tillich, Bultmann, Rahner an other scholars.

157. GOD IN CONTEMPORARY THOUGHT

A study of the question of God's existence and nature in the writings of cor temporary thinkers, with special attention to neo-orthodox, existentialist an radical theologians of all persuasions.

160. SOCIOLOGY OF RELIGION

A study of religious phenomena and the function of religion in society using th analytic tools of the social sciences. Contributions of classical figures, e.g. Ma Weber, Emile Durkheim and Malinowski; principal focus on contemporary theor and empirical studies of religion.

162. THEOLOGY AND SOCIAL CHANGE

A study of three or four theological perspectives as each comes to terms wit a selected problem of social change, e.g., race, technology, the third world, th university, violence, non-violence. Theological emphasis on questions of Chris tian humanism, theology of history and theories of social change.

3. THEOLOGY AND POLITICS

A study of the alternative ways to make explicit the relationship of theology and politics. Principal theologians studied: Reinhold Niebuhr, H. Richard Niebuhr, Jacques Maritain, Paul Tillich, John Courtney Murray, Paul Ramsey, Johannes Metz, Harvey Cox and Juergen Moltmann. Concentrated treatment of one or two problems as illustrative. Guest lecturers from related disciplines.

6. THEOLOGY OF NON-VIOLENCE

A study of the theory of non-violence as a tool of social reform and individual fulfillment as seen in Christian and Hindu literature. Special emphasis on the ideals of Christ and on the writings of Thoreau, Tolstoy, Gandhi and Martin Luther King, Jr.

1. QUESTIONS IN CONTEMPORARY JUDAIC RELIGION

A study of Judaism in the twentieth century in terms of its principal cultural and social influences, its religious forms and theological teaching.

3. QUESTIONS IN CONTEMPORARY CATHOLIC THEOLOGY

A study of selected theological problems in the writings of contemporary Catholic thinkers.

4. QUESTIONS IN CONTEMPORARY PROTESTANT THEOLOGY

A study of selected theological problems in the writings of contemporary Protestant thinkers.

0. THEOLOGICAL AESTHETICS

On the supposition that the unity of life (experience) and art is the unity of art and religion, each medium is examined for its inner relationship to religion.

1. HISTORY OF RELIGIOUS ART IN THE WEST, PART I: EARLY CHRISTIAN BYZANTINE, ROMANESQUE AND GOTHIC PERIODS

A study of the development of visual religious expression as reflected in architecture, sculpture and painting from Early Christian-Byzantine art through the Gothic period; an exploration of Christian iconography and symbolism as an artistic language in these periods; a study of the role of the artist in the religious community of these periods.

2. HISTORY OF RELIGIOUS ART IN THE WEST, PART II: RENAISSANCE, BAROQUE AND MODERN PERIODS

A study of the development of visual religious expression as reflected in architecture, sculpture and painting from the beginning of the Renaissance (North and South), through the Baroque period to the present; an exploration of Christian iconography and symbolism as an artistic language in these periods; a study of the role of the artist in the religious community of these periods.

183. ART AND RITUAL

A comparison of these two modes of symbolization, with an emphasis on the connection with liturgy.

184. THE CHURCH AND THE THEATRE ARTS

Open to students majoring in Religious Studies, Theatre Arts and English Literature. A seminar course conducted jointly by a member of the Religious Studies department and a member of the Theatre Arts Department; an investigation of the historical relationship of religion and the Christian Church to the theatre arts; an exploration of the possibilities for a vital contemporary relationship.

187. RELIGION AND ART IN THE DOCUMENTS OF VATICAN II

A textual study designed to recapture the vision of the Church Fathers with regard to art, and to guage the contemporary potential for the realization of this vision.

188. THEOLOGY IN CONTEMPORARY LITERATURE

A study of selected literary works, especially of the major novelists since Dostoevsky, in terms of their theological implications and religious insights.

189. THE PRE-COLUMBIAN RELIGIONS OF MEXICO

A study of the nature of religion, with the data drawn mainly from the Pre-Columbian religions of Middle America as expressed in the art and literature of the people. Includes some comparative study of the students' own personal and traditional (Christian) religious modes with those of the Pre-Columbian peoples.

190. SPECIAL QUESTIONS IN THEOLOGY

198. DIRECTED READING AND RESEARCH

COLLEGE OF HUMANITIES

DEPARTMENT OF SPEECH AND THEATRE ARTS

William R. James, Ph.D., *Chairman*

Associate Professor: William R. James
Assistant Professors: Marcia M. Frederick, Robert F. Shea
Acting Assistant Professor: Stephen C. Schultz
Lecturer: Albert L. Gibson

The Department of Speech and Theatre Arts offers a major in Theatre Arts leading the degree of Bachelor of Arts. Students who wish to make Theatre Arts their major st complete twelve courses in the Department with an average grade of C. Eight of twelve courses must be from the 100 series. The twelve courses must normally lude 10, 20 (or its equivalent), 30, 32, 150, and 170 or 172 (students who intend to ch in secondary schools or attend graduate school must take 170). Two courses st be selected from the dramatic literature series, 111 through 119; at least one of se must be 112, 113, 115, or 119. One course must be chosen from 133, 135, and 2. With the consent of the Chairman, one 100 series course in dance, Music, or e Arts may be used to complete the requirements of the major.

The Theatre Program

In conjunction with its academic program, the Department also produces a number plays each year. This program includes a full season of faculty directed and de- gned plays on the main stage of the Lifeboat Theatre, and an unfixed number of dent directed plays on the studio stage. The studio series is intended to supplement e main stage productions by providing a creative outlet for beginning actors, play- ights, and directors. Each major student is expected to participate in the production ogram of the Department, but this program exists for the benefit and enjoyment of the students in the University.

1. FUNDAMENTALS OF SPEECH

A basic course in oral communication, stressing the practice of extemporaneou speaking. Content, organization, and delivery of informative and persuasive talk

2. VOICE PRODUCTION FOR THE STAGE

Development of sensitized breath and vocal centers, and forward focused vow tones. Development of articulators; expansion of vocal range; refinement t wards more lyrical tone. Sustaining course; meets once a week for a full yea Register spring term.

9. THEATRE APPRECIATION

Designed for the non-major. The course attempts to implant an understandin of and appreciation for the dramatic art. Theatre aesthetics. Dramatic art i contemporary society.

10. INTRODUCTION TO THEATRE ARTS

A basic study of theatre as a performing art. The functions and techniques c the theatre artist. Vocabulary of the theatre. Representative plays studied a pieces to be performed.

20. ACTING I

Improvisation. Analysis of skills and problems of individual students. Introductio to creative method. Sensitizing of physical and mental tools.

21. ACTING II

Principles and practice of basic acting technique. Analysis, imagination, an psychotechnique. Development of physical and oral skills.

22. ACTING III

Characterization and creating a role. Extensive practice in acting scenes.

26. STAGE MOVEMENT AND MIME

Expression of feeling through the body. Development of sensitivity to movemen in creating a role. Mime.

30. PLAY PRODUCTION I

Stage nomenclature. Basic principles and techniques of stagecraft. Handling o scenery, power and hand tools. Modern production methods.

31. PLAY PRODUCTION II

Fundamentals of stage lighting and sound. Stage management and back-stage operation.

2. PLAY PRODUCTION III

Constume crafts for the theatre. Patterns, cutting, sewing. Basic principles of design and make-up.

5. ORAL READING

Reading literature aloud. Development of vocal skills for communicating thought and feeling in literature.

0. CREATIVE PROJECTS

Projects in acting, design, technical production, stage management, and directing initiated by the student. Credit given by pre-arrangement with and consent of the appropriate staff member.

2. CONTINENTAL DRAMA

A study of selected European plays of the seventeenth, eighteenth and nineteenth centuries in translation. Emphasizes Classicism, Romanticism, and Realism. Not offered 1970–71.

13. MODERN DRAMA

A study of selected European plays of the twentieth century. Considers the various literary movements from symbolism to the Black Theatre of the present.

15. ENGLISH DRAMA: SHERIDAN, SHAW, PINTER

The study of the drama in England from 1660 to the present. Emphasis on Restoration and contemporary drama.

19. AMERICAN DRAMA

A study of selected American plays of past and present. Emphasis on the modern period.

22. ADVANCED ACTING

A detailed study of creative method in role development. Considerable attention given to individual diagnosis and analysis. Not offered 1970–71.

29. REHEARSAL AND PERFORMANCE

Class selects, analyzes, designs and rehearses a play for public performance. Permission of instructor required.

30. ADVANCED STAGECRAFT

Free form structures. Special materials. Welding and iron work. Techniques of property construction. Not offered 1970–71.

131. STAGE LIGHTING

Theory and practice of stage lighting. Methods of control. Instrumentation. Col theory and aesthetics. Not offered 1970-71.

133. SCENE DESIGN

Elements of scenic design. Perspective, rendering, drafting, model makin Styles of design. Scene painting and dressing the set.

134. HISTORY OF COSTUME

History of costume in the Western world from ancient times to the present. Tra ditional and conventional stage costumes. Not offered 1970-71.

135. COSTUME DESIGN

Principles of costume design for the stage. Fabrics and special material Rendering. Style problems. Not offered 1970-71.

150. PLAYSCRIPT INTERPRETATION

Study of theory of reading; from the implications of the theory, a method is de rived for interpretation of dramatic playscripts.

151. PLAYWRITING

Critical analysis of dramatic structure and dramaturgic technique. Writing an staging of original plays.

152. PLAY DIRECTING

Problems of play directing and skills required of play director. Projects in di recting. Permission of instructor required.

160. THEATRE ADMINISTRATION

Functions and techniques of the Producer, Business Manager, House Manager and Box Office Manager. Building an audience. Control systems.

170. HISTORY OF THE THEATRE

A study of the physical theatre, production theory and practice, acting styles and methods of staging from the ancient Greeks to the Romantic Movement Not offered 1970-71.

172. THEORY AND PRACTICE IN MODERN THEATRE

A detailed study of selected theatre practitioners, their theories and techniques from the early realists to the present.

180. ADVANCED CREATIVE PROJECTS

Projects in acting, design, technical production, stage management, and direct ing initiated by the student. Credit given by pre-arrangement with and consen of the appropriate staff member. Juniors and seniors only.

THE COLLEGE OF SCIENCES

John B. Drahmann, Ph.D., *Dean*

DEGREE PROGRAMS

Bachelor of Science

The College of Sciences offers major programs leading to the degree of Bachelor f Science in the areas of Biology, Chemistry, Mathematics, Physics, Economics, Politi- al Science, Sociology and Psychology.

ACADEMIC INFORMATION

Freshmen and sophomores, except for Honors students and Advanced Placement tudents, are normally restricted to lower-division courses (numbered 1 to 99). Juniors nd seniors are expected to take at least 12 upper-division courses (numbered 100 to 99).

Undergraduate work in the College of Sciences is measured in terms of number f completed courses. No credit is given for less than a full course and no special credit s given for laboratory work.

Credit by examination may be earned according to the rules specified in the ection, "Academic Requirements and Regulations," except for courses involving lab- ratory work, seminar courses, or courses labeled NCX. Course descriptions indicate vhere laboratory work is required.

COLLEGE OF SCIENCES

ANTHROPOLOGY

Assistant Professor: Richard L. Berg

The Department of Anthropology offers students an understanding about the physi- cal, social and cultural nature and behavior of man from a historical as well as geo- graphical perspective. Lower division courses offer a general understanding of human evolution and variation and the nature of human societies and cultures. Upper division courses are intended to be specific in their studies, analysis and investigations related to human social and cultural behavior.

It is recommended that students who wish to enroll in any upper division courses first complete Anthropology 3 (Cultural and Social Anthropology).

1. PHYSICAL ANTHROPOLOGY

A study of the origin and antiguity of man, fossil evidence for human evolution and human variation through morphology, serology, and genetics.

3. CULTURAL AND SOCIAL ANTHROPOLOGY

The concept of culture and society, the development and evolution of social and cultural systems, and their structure and functioning in every place and time.

120. EARLY CIVILIZATIONS

Culture prehistory and history from Late Palaeolithic through the Bronze Age emphasizing the beginnings of civilizations in Mesopotamia, Egypt, India and China.

142. SOCIAL ORGANIZATION

Investigation of kinship and marriage systems throughout the world, their relationship with other social institutions and organizations.

144. CULTURE CHANGE

Examination of the various theories and studies on cultural and social change.

152. ANTHROPOLOGY IN MODERN LIFE

Study and analysis of human organization, an orientation toward social and cultural processes and values, and social administration.

COLLEGE OF SCIENCES
DEPARTMENT OF BIOLOGY

Leo J. Hombach, S.J., M.S., *Chairman*

Professors: Francis R. Flaim, John S. Mooring
Associate Professor: Thomas N. Fast
ssistant Professors: Leo J. Hombach, S.J., Murray W. Nabors, Geraldine A. Tomlinson

The biology curriculum reflects the great expansion of, and changes in, the life ciences. It follows the suggestions of the National Research Council and of the Commission on Undergraduate Education in the Biological Sciences through seeking to repare its graduates for any area of the life sciences by emphasizing principles and voiding premature specialization. All students take a basic series of courses for their rst three years and then elect further courses in either cellular or environmental iology. This program allows a solid foundation in the liberal arts with a clear understanding of the basic principles and subject matter of biology while deferring specialization until the senior year, when the student is in a better position to decide upon an rea of concentration. The proficient graduate is then prepared to enter professional or raduate school, to find employment in nearly any area of the life sciences, or, with dditional education courses, to teach biology in secondary schools.

Students who wish to make biology their major subject are required to fulfill the eneral requirements of the College of Sciences and complete the following for the achelor of Science degree:

1. Biology 20, 21, 22, and 23; Chemistry 1, 2 and 35.
2. Physics 1 and 2.
3. Seven upper-division courses, including 110, 111, 115, and 161. The remaining upper-division courses should be selected in consultation with the student's faculty advisor.
   a) All upper-division biology courses must be completed with at least a C average.
   b) Each candidate for a degree may be required to pass a comprehensive examination in the major. This examination may be oral, written, or both, and will be scheduled within the last six weeks of the Junior year or the beginning of the Senior year.
4. Chemistry 10, 36, and 37 are desirable for all and should be taken by those who plan professional studies in medicine, dentistry, or biology.
5. Although not a departmental requirement, students aspiring for graduate schools are strongly advised to study German and/or French.
6. Math 11 and 12 (Calculus) are recommended to all prospective candidates to graduate or professional schools; Math 7 and 8 are satisfactory for other students.

Honors Program

An Honor student in Biology is eligible for Biology 195. He is also eligible to take Honors courses in other departments. In addition, if a student demonstrates competence n a particular field of biology, he may, with the Chairman's approval, carry out independent research in conjunction with regularly offered courses.

2. BASIC PRINCIPLES OF HUMAN BIOLOGY

A study of man's structure, function, reproduction, and development with empha sis on tissue and organ systems. Designed for Psychology and Sociology majors Laboratory dissection of a mammal 30 hours. Fall term only.

9. INTRODUCTION TO BIOLOGY

A course open to non-majors emphasizing the variety, diversity, and mainte nance of animal organisms. Winter term only.

10. INTRODUCTION TO EVOLUTION

An examination of the processes that have produced the diversity of livin things. Non-majors only. Prerequisite: a high school or college biology course Fall term only.

20-23. BIOLOGY OF ORGANISMS, CELLS, AND POPULATIONS I - IV

A four-term core course in biology dealing with plant and animal organisms cells and microorganisms, evolution, and communities. Required of biology majors.

20. BIOLOGY OF ORGANISMS, CELLS, AND POPULATIONS I

The first term introduces the student to the variety, diversity, and function of animal and organ systems. Laboratory 30 hours. Winter term only.

21. BIOLOGY OF ORGANISMS, CELLS, AND POPULATIONS II

The second term emphasizes the structure of cells and their metabolism and offers an introduction to the study of microorganisms. Laboratory 30 hours. Prerequisite: Chemistry 2 or equivalent. Spring term only.

22. BIOLOGY OF ORGANISMS, CELLS, AND POPULATIONS III

The third term emphasizes principles of genetics and development and offers an introduction to the variety, function, and reproduction of plants. Laboratory 30 hours. Prerequisite: 21. Fall term only.

23. BIOLOGY OF ORGANISMS, CELLS, AND POPULATIONS IV

The fourth term emphasizes evolutionary mechanisms, populations and communities. Laboratory and field trips 30 hours. Prerequisite: 22. Winter term only.

99. SPECIAL TOPICS

A more detailed investigation of a specific area or topic in the biological sciences. Open to non-majors as well as majors. Minimum laboratory: 20 hours.

101. VERTEBRATE ANATOMY

Comparative structure, organization, adaptation, classification. Laboratory 60 hours. Fall term only.

102. VERTEBRATE EMBRYOLOGY

Gametogenesis, fertilization, patterns of development in the vertebrate, organogenesis. Laboratory 60 hours.

104. HISTORY OF BIOLOGY AND SEMINAR

Development of the science of biology, its doctrines and hypotheses. Guided reading in modern biology. NCX*

107. HISTOLOGY AND CYTOLOGY

Protoplasm, cells, basic tissue types, structure and histogenesis. Basic histological techniques. Laboratory 60 hours. Spring term only.

110. GENETICS

Basic principles governing inheritance in plants and animals. Laboratory 30 hours. Spring term. Also offered in Fall term in 1970.

111. CELLULAR PHYSIOLOGY

Physiological systems of plant and animal cells. Interaction at the molecular and cellular level. Laboratory 30 hours. Winter term only.

113. GENERAL MICROBIOLOGY

Characteristics of microorganisms—bacteria, fungi, viruses, rickettsiae. Indentification, isolation, morphology, physiology, bacterial genetics. Laboratory 50 hours. Fall term only.

115. DIFFERENTIATION AND DEVELOPMENT

Developmental phenomena as observed in cells and higher plants and animals with special emphasis on gene interaction in differentiation, morphogenesis, and growth. Laboratory 30 hours. Offered in Winter 1971.

116. PARASITOLOGY

Basic principles and concepts. A survey of the major groups of parasites of man and domestic animals, with emphasis on the life cycle and evolutionary history. Laboratory 30 hours. Winter term only. Not offered 1971.

121. ENTOMOLOGY

Introduction to the study of insects. Evolution, structure, major orders and families life histories, economic importance and control. Laboratory 30 hours. Spring term only. Not offered 1971.

124. ANIMAL PHYSIOLOGY

A comparative study of organs and organ systems among vertebrates and invertebrates. Laboratory 60 hours. Prerequisite: 20 or equivalent. Spring term only.

132. FIELD BOTANY

Field study of vascular plants, especially the seed plants of California; their identification, distribution, and ecology. Laboratory 60 hours. Spring term only. Not offered 1971.

156. GENERAL ECOLOGY

Plant and animal populations, habitats, relationships, and adaptations. Laboratory and field work; community analysis, measurements of physical factors. Laboratory 30 hours. Spring term only. Not offered 1971.

161. ENVIRONMENTAL AND POPULATION BIOLOGY

An examination of ecological relationships and evolutionary processes. Laboratory and field trips 30 hours. Spring term only.

171. CHEMICAL BIOLOGY

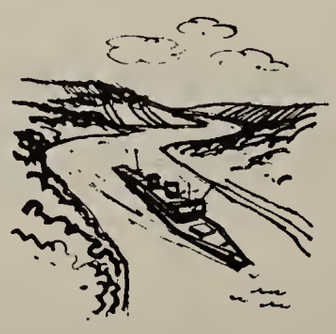
Chemistry of biologically important compounds. Reactions and interactions of amino acids, proteins, carbohydrates, lipids, nucleic acids, and steroids. Enzyme Chemistry Energy relationships in biological systems. Prerequisite: Chemistry 37. Winter term only.

195. SPECIAL PROBLEMS

Supervised investigation culminating with a written report suitable for publication. Sustained for one year with credit given for one term. Prerequisite: Permission of the Department Chairman. NCX*

199. INDEPENDENT STUDY IN BIOLOGY

Detailed investigation of specific topics in biology under the close direction of a faculty member. Prerequisite: Permission of the Department Chairman. NCX*



*Exempted from challenge.

COLLEGE OF SCIENCES
DEPARTMENT OF CHEMISTRY

Joseph F. Deck, Ph.D., *Chairman*

Associate Professor: Robert J. Pfeiffer
Assistant Professor: Michael A. Sweeney
Acting Assistant Professor: Lawrence C. Nathan

The Curricula offered by the Department of Chemistry include two baccalaureate egrees. (1) Bachelor of Science in Chemistry (certified by the American Chemical ociety), and (2) Bachelor of Science with a major in Chemistry.

Bachelor of Science in Chemistry (Certified)

This four-year curriculum provides graduates with the training necessary to enter ork as chemists in various commercial and governmental laboratories or to transfer pon graduation, to institutions offering advanced degrees in Chemistry. The American hemical Society certifies that this degree meets all its recommended standards for ne professional training of chemists

Requirements for Bachelor of Science in Chemistry (Certified)

Requirements in Major. Chemistry 1, 3, 11, 35, 36, 37.* Chemistry 101, 110, 134, 35, 140, 151, 152, 153, and either 112, or 154, whichever is offered.

Required Supporting Courses. Physics 4, 5, 6; Mathematics 11, 12, 13.

A grade-point average of 2.0 for all chemistry courses undertaken is required for dmission to, or retention, in this program. A reading knowledge of German is also equired, and the student must pass an examination in this language, administered by ne Department of Chemistry, at the completion of the third term in the third year. ne upper-division course in Physics or Mathematics may be substituted for an upper-ivision course in Chemistry.

Honors Program

Students of superior ability who enroll in the certified program may apply for dmission to the Honors Program. An Honors Student in Chemistry will be required to omplete a research thesis and present it at the annual convention of the Student ffiliates of the American Chemical Society.

Bachelor of Science with a Major in Chemistry

This four-year terminal program provides a liberal scientific degree with emphasis n the physical science that lies between physics and biology. It offers chemical train-ig for those planning to obtain work of a broad technical nature, either in scientific aboratories or in fields allied in chemistry. This program will suffice for careers in atent law, library work, teaching, or businesses or industries having chemical products. igh school preparation should include algebra, geometry, trigonometry, and chemistry.

CH 35, 36, and 37 replace CH 32, 33, and 34 after September 1972.

Requirements for Bachelor of Science with a Major in Chemistry

Requirements in Major. Chemistry 1, 3, 11, 35, 36, 37.* Chemistry 101, 110, 134, 151 152, 153, and either 112, 135, 140, or 154. One additional upper-division course mus be taken in a science other than Chemistry.

Required Supporting Courses. Physics 1, 2. Mathematics 11, 12, 13.

NB. The following pairs of courses are the same in content and scheduling excep for laboratory work: 2 and 3; 10 and 11; 31 and 35.

1. CHEMISTRY FOR CHEMISTS, BIOLOGISTS, PHYSICISTS

Stoichiometry. Atomic Structure, Periodic Table. Kinetic Theory of Gases Chemical bonding and structure. Chemical Properties. Illustrative Problems Quantitative determinations in laboratory exercises. Laboratory 30 hours. Fa term.

2. CHEMISTRY FOR BIOLOGISTS AND PHYSICISTS

Thermodynamics. Properties of solids, liquids, and solutions. Chemical Kinetics Relationship of equilibrium systems in inorganic chemistry, both in theory an laboratory exercises. Systematic analysis of cations and anions in the labora tory. Prerequisite: 1. Laboratory 30 hours.

3. CHEMISTRY FOR CHEMISTS

Thermodynamics. Properties of solids, liquids, and solutions. Chemical Kinetics Relationship of equilibrium systems in inorganic chemistry, both in theory an laboratory exercises. Systematic analysis of cations and anions in the labora tory. Prerequisite: 1. Laboratory 60 hours. Winter term.

5. CHEMISTRY FOR ENGINEERS I

Atomic structure. Periodic Table-history, meaning and use. Valence and moder bonding theory. Equivalent weight. Theories of acids and bases. Oxygen, hydro gen, and water. Balancing chemical reactions. Gas laws. Formulas, Rates o reaction. Chemical equilibrium. Close-packing as key to crystal structure Molecular structure. Laboratory 30 hours. Fall term.

6. CHEMISTRY FOR ENGINEERS II

Electromechanical cells. Fuel cells. Mining and Metallurgy. Phase Rule in physi cal and chemical equilibria. Industrial processes. Halogens. Sulpher family Nitrogen family. Organic Chemistry. Student Subjects. No laboratory. Pre requisite: 5 or equivalent. Winter term.

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*35, 36, and 37 replace 32, 33, and 34 after September 1972.

7. **THE ART OF CHEMISTY**

Atomic and molecular structure. Laws of chemical change. Kinetic theory. Periodic chart. Chemical reactions. The nucleus and unclear reactions. For the non-professional student. Laboratory 30 hours.

8. **CHEMISTRY IN EVERYDAY LIVING**

Compounds of carbon. Food chemistry. Biochemical reactions. The role of chemistry in modern life. Laboratory 30 hours. Prerequisite: High school chemistry.

0. **QUANTITATIVE ANALYSIS FOR BIOLOGISTS**

Theories and practice of acidmetry, alkalimetry, and volumetric precipitations. Introduction to gravimetric analysis. Introduction to theories of oxidimetry and reductimetry. Laboratory 40 hours. Prerequisite: 1, 2.

1. **ELEMENTARY QUANTITATIVE ANALYSIS FOR CHEMISTS**

Theories and practice of acidimetry, alkalimetry and volumetric precipitations. Gravimetric analysis. Introduction to theories of oxidimetry, and reductimetry. Laboratory 80 hours. Introduction to instrumental analysis. Prerequisite: 1, 3.

0. **SURVEY OF ORGANIC CHEMISTRY**

A survey of the more important classes of organic compounds with emphasis on materials of interest to the students of the biological sciences. Laboratory 30 hours. Intended for students not majoring in chemistry and not planning to take additional courses in organic chemistry. Prerequisite: 1. Spring term.

1. **ORGANIC CHEMISTRY I**

Structure and bonding in organic compounds. Chemistry of aliphatic and romatic hydrocarbons. Stereochemistry. Introduction to reaction mechanisms. Laboratory 30 hours. Prerequisites: 2 or 3. Fall term.

2. **ORGANIC CHEMISTRY II**

Properties and preparation of compounds containing a single functional group. Reaction mechanisms. Absorption spectra. Laboratory 30 hours. Prerequisite: 31.

3. **ORGANIC CHEMISTRY III**

Chemistry of polyfunctional compounds. Introduction to heterocyclic compounds, proteins, and carbohydrates. Polynuclear hydrocarbons. Laboratory 30 hours. Prerequisite: 32.

34. ORGANIC CHEMISTRY IV

Chemistry of polyfunctional compounds. Introduction to heterocyclic compounds, proteins, and carbohydrates. Polynuclear hydrocarbons. Laboratory 60 hours. Prerequisite: 32.

35. ORGANIC CHEMISTRY I

Structure and bonding in organic compounds. Chemistry of aliphatic and aromatic hydrocarbons. Stereochemistry. Introduction to reaction mechanisms. Laboratory 40 hours. Prerequisite: 2 or 3.

36. ORGANIC CHEMISTRY II

Properties and preparation of compounds containing a single functional group. Reaction mechanisms. Absorption spectra. Laboratory 40 hours. Prerequisite: 35.

37. ORGANIC CHEMISTRY III

Chemistry of polyfunctional compounds. Introduction to heterocyclic compounds, proteins, and carbohydrates. Polynuclear hydrocarbons. Laboratory 40 hours. Prerequisite: 36.

50. SURVEY OF PHYSICAL CHEMISTRY

Physical states of matter, solutions, conductivity, equilibria, thermodynamics, kinetics, and collidal systems. Intended for students majoring in the biological science. A term course in calculus is advisable. Prerequisites: 10, 31 or 35.

101. ADVANCED INORGANIC CHEMISTRY

Chemistry of complexions. Periodic law. Chemical properties of the elements. Rare earths and transuranium elements. Synthetic inorganic chemistry. Laboratory 30 hours. Prerequisites: 11, 36, 152.

110. INSTRUMENTAL METHODS IN ANALYSIS

Principles and use of instruments. Potentiometric, conducttometric, and ampereometric titrations. Polarography, controlled cathode potential electrodeposition. pH measurements. Colorimetry; Spectrophotometry, and Emission Spectrography. Laboratory 60 hours. Prerequisites: 11, 37 and 152.

112. ADVANCED QUANTITATIVE ANALYSIS

Advanced topics in quantitative analysis. Laboratory 60 hours. Prerequisites: 11, or 10, and 36.

134. ADVANCED ORGANIC CHEMISTRY I

Preparation and reaction of five- and six-membered rings with one heterocyclic atom. Brief introduction to other classes. Laboratory 60 hours. Prerequisite: 37.

35. ADVANCED ORGANIC CHEMISTRY II — Mechanisms

Molecular orbital treatment of organic compounds. Reactivity and structure. Mechanisms of reactions. Photochemistry.

40. BIOCHEMISTRY

Carbohydrates, lipids, proteins. Constituents of blood and urine. Enzymes. Colloidal state, digestion, and biological oxidation. Prerequisites: 37, 152.

51. PHYSICAL CHEMISTRY I

Equations of state of pure fluids. Energy and enthalpy. Therochemistry. Entropy. Free Energy. Chemical Potential. Surface Energy. Phase Rule. Colligative properties. Problems. Prerequisites: 11, Mathematics 13, Physics 6 or 2.

52. PHYSICAL CHEMISTRY II

Chemical equilibrium. Chemical kinetics. Migration of charged species. Colloids. Electrochemical cells. Introduction to quanta, waves, and particles. Partical in box. Problems. Laboratory 60 hours. Prerequisite: 151.

53. PHYSICAL CHEMISTRY III

Quantum mechanics. Harmonic oscillator. Hydrogen atom. Variation method. Virial theorem. Molecular structure and spectroscopy. Perfect and imperfect crystals. Statistical mechanics. Reaction rate theory. Problems. Laboratory 60 hours. Prerequisite: 152.

54. ADVANCED PHYSICAL CHEMISTRY

Appropriate topics in quantum theory, statistical mechanics, chemical bonding, solid state theory, molecular structure, radioactivity, or spectroscopic theory. Prerequisite: 153.

80. UNDERGRADUATE RESEARCH

Individual research for senior chemistry majors under direction of faculty. Chemical and/or computer laboratory 40 hours. Prerequisites: 37, 153.

COLLEGE OF SCIENCES
DEPARTMENT OF ECONOMICS

Mario L. Belotti, Ph.D., *Chairman*

Professor: Mario L. Belotti
Visiting Professors: Elmer D. Fagan, Bernard Haley
Associate Professor: Thaddeus J. Whalen, Jr.
Assistant Professors: Richard T. Coz, S.J., Henry Demmert, William Donnelly, S.J., John Heineke, Gerald T. O'Mara
Acting Assistant Professor: Michael K. Block

The Bachelor's degree with a major in Economics is offered through the Social Science Division of the College of Sciences.

Students who wish to make economics their major, in addition to fulfilling the general requirements of the University and those of the College of Sciences, must complete the following departmental requirements:

Freshman and Sophomore year: One term course in Statistics. Two term courses in Economics (Economics 1 and 2). One additional term course in English.

Junior and Senior years: Eight courses in Economics and one method course. Economics 110, 114 and 115 are required of all the students.

Honors Program

In collaboration with other departments of the Social Sciences Division, the Department of Economics offers to its best students an honors program consisting of special seminars and independent studies. Students will be admitted into the honors program only upon faculty recommendation.

1. PRINCIPLES OF ECONOMICS I

An introduction to the general principles, terminology, and methods of macroeconomics.

2. PRINCIPLES OF ECONOMICS II

An introduction to the general principles, terminology, and methods of microeconomics.

12. AMERICAN ECONOMIC HISTORY

A study of the economic history of the United States with special emphasis upon basic economic organizations, such as the business enterprise, the labor union, and the economic functions of government.

15. RESOURCES AND INDUSTRIES

A study of the meaning, nature, and availability of resources and their relationship to human wants and social objectives.

0. CURRENT ECONOMIC ISSUES

A study of contemporary economic problems.

5. STATISTICS I

Introduction to statistical methods and techniques of elementary statistical analysis.

1. STATISTICS II

A course designed to acquaint the student with the foundations of statistical research methods. Topics include distribution theory, estimation, testing, and prediction, with special emphasis upon multivariate models.

0. HISTORY OF ECONOMIC THOUGHT

A study of the evolution of economic ideas and their influence on the development of economic practices.

1. MATHEMATICAL ECONOMICS

The formulation and evaluation of economic theories by the use of mathematical methods.

2. ECONOMETRICS

The application of mathematical and statistical methods to the analysis of economic theory. Prerequisites: 114 and 115.

3. INDUSTRIAL ORGANIZATION

A microanalysis of the structure, conduct, and performance of American industry.

4. PRICE THEORY

The formulation and explanation of the theory of output, cost, and product prices and of the theory of the employment of, and returns to, the factors of production.

5. AGGREGATE ECONOMIC THEORY

An analysis of the level of national income and its determinants.

6. ECONOMIC DEVELOPMENT OF THE UNITED STATES

An analysis of the principal factors governing the growth and expansion of the American economy since 1800.

117. ECONOMIC DEVELOPMENT OF EUROPE

A study of the preindustrial environment and industrial growth patterns of th western European countries.

118. COMPARATIVE ECONOMIC SYSTEMS

A comparison of free market economies with other economies.

119. PUBLIC FINANCE

An analysis of public expenditures, public revenues, and public debt with pa ticular emphasis upon their effects on the economy.

120. TAXATION

An analysis of the shifting, incidence, and economic effects of the various form of taxation.

121. WELFARE ECONOMICS

A study of the principles by which economists evaluate the social desirabilit of alternative market arrangements.

122. MONEY AND BANKING

A theoretical, institutional, and historical approach to the study of money an banking, with particular emphasis upon the relationship between the monetar and banking system and the rest of the economy.

128. BUSINESS FLUCTUATIONS AND FORECASTING

A study of the nature and causes of economic instability in an industria economy.

129. ECONOMIC DEVELOPMENT

An analysis of the historical and theoretical context underlying present effort to increase the rate of economic growth in underdeveloped countries.

130. LATIN AMERICA ECONOMIC DEVELOPMENT

A study of the economic development of Latin American countries with particu lar emphasis upon the relationships between economic growth and the social political and economic structures of these countries.

131. AFRICA ECONOMIC DEVELOPMENT

A study of the economic development of Africa, with particular emphasis upo the relationships between economic growth and the social, political and eco nomic structures of these countries.

32. ASIA ECONOMIC DEVELOPMENT

A study of the economic development of Asian countries with particular emphasis upon the relationships between economic growth and the social, political, and economic structures of these countries.

33. SOVIET ECONOMIC DEVELOPMENT

A study of the economic development of the Soviet Union since the Communist Revolution.

34. GROWTH DYNAMICS

A study of growth models with particular emphasis upon the growth of economies already employing modern production techniques and highly developed economic institutions. Prerequisite: 115.

40. URBAN ECONOMICS

An investigation of possible causes and alternative solutions concerning the major economic problems affecting urban areas.

150. LABOR ECONOMICS

A study of labor productivity, incomes, employment and how these are affected by labor organizations and labor legislation.

160. THE ECONOMICS OF POVERTY

A study of the economic conditions which lead to poverty and possible alternative policies directed at modifying such conditions.

180. INTERNATIONAL ECONOMICS

An analysis of the theory of international trade, of problems in balance of payments adjustments, and of international policies.

188. JUNIOR SEMINAR

Modern economic theories and problems. Reserved for Honors students.

189. SENIOR SEMINAR

Modern economic theories and problems. Reserved for Honors students.

COLLEGE OF SCIENCES

DEPARTMENT OF MATHEMATICS

Gerald L. Alexanderson, M.S., *Chairman*

Professors: Karel L. De Bouvere, S.C.J., Irving Sussman
Associate Professors: Gerald L. Alexanderson, George W. Evans II
Assistant Professors: Alice J. Kelly, Leonard F. Klosinski, David E. Logothetti, Stephen M. Strasen
Instructor: Rotraut Weiss
Lecturer: Jean J. Pedersen

The Department of Mathematics offers work leading to a major or a minor i mathematics, as well as required and elective courses for students majoring in othe fields. The major may be pursued with three principal goals in mind: preparation fo graduate work in mathematics or other related fields leading to advanced degrees preparation for secondary school teaching of mathematics; preparation for a career i research for industry or government.

Graduate work is offered in the Department only for the degree Master of Scienc in the Teaching of Mathematics; for a description of this degree, see the *Graduat School of Humanities Bulletin.* For a description of the degree Master of Science i Applied Mathematics offered by the School of Engineering, see the *Graduate Program Bulletin of the School of Engineering.*

Requirements for the Bachelor of Science Degree

Students majoring in mathematics are required to take lower-division course numbered 11, 12, 13, 21, 52, and 53, together with an approved selection of seve upper-division courses (numbered above 100). The upper division courses must includ 102 and 111. Students planning to go on to graduate school should take 103, 105, 112 and 154. Specific admission to upper division standing must be obtained by the stu dent before he is allowed to undertake the more advanced courses; this permissio will be granted only to students whose performance in lower-division courses clearl indicates the aptitude and interest necessary for advanced work.

Majors in mathematics are required to take Physics 4 to satisfy their natural sci ences requirement. An additional course, usually Physics 5, is required of all mathe matics majors. This additional course may, however, be Economics 111 or 112 if th student has a special interest in mathematical applications in the social sciences o economics. Majors intending to become teachers of mathematics in secondary school may substitute Physics 1 and 2 for the above courses, with the approval of the Chair man of the Department.

Physics 131 and 132, Introduction to Mathematical Physics I and II, may be take to satisfy departmental requirements in mathematics.

Majors in mathematics will be required to demonstrate ability to read a mathe matical work in French, German, or Russian prior to graduation.

A major in mathematics with emphasis in computer science is offered by th Department to students planning careers in research in government or industry Students interested in course outlines for this major should request such a list fro the Chairman of the Department. Outlines are also available describing the majo leading in a fifth year to the teaching credential of the State of California.

Honors Program

The Department maintains a program for the discovery, encouragement and development of mathematical talent among undergraduates. This program includes special sections, seminars, individual conferences and directed study guided by selected faculty members. An active Undergraduate Research Participation Project supported by the National Science Foundation is directed by members of the Department.

1. ALGEBRA AND TRIGONOMETRY

Topics in college algebra and trigonometry. Intended for students who wish to take further work in mathematics. Permission to enroll must be obtained from the Chairman of the Department.

2. MATHEMATICS FOR ELEMENTARY SCHOOL TEACHERS

Topics include sets, number systems, inequalities and equations, and other basic topics in modern mathematics.

6. MATHEMATICAL ANALYSIS FOR SOCIAL SCIENCE I

An introduction to different and integral calculus with applications to the Sets, combinatorial problems, probability, vectors and matrices.

7. MATHEMATICAL ANALYSIS FOR SOCIAL SCIENCE II

An introduction to differential and integral calculus with applications to the social sciences. Prerequisite: 6 or permission of the instructor.

8. MATHEMATICAL ANALYSIS FOR SOCIAL SCIENCE III

A continuation of 7.

11. ANALYTIC GEOMETRY AND CALCULUS I

Plane analytic geometry with vectors, differentiation and applications, integration. Prerequisite: four years of high school mathematics (including trigonometry) or satisfactory grade in 1.

12. ANALYTIC GEOMETRY AND CALCULUS II

Continuation of 11. Applications of integration, transcendental functions, determinants and linear equations, hyperbolic functions.

13. ANALYTIC GEOMETRY AND CALCULUS III

Polar coordinates, vectors, parametric equations, solid analytic geometry, partial differentiation. Prerequisite: 12.

21. CALCULUS AND DIFFERENTIAL EQUATIONS

Multiple integration. Infinite series. Complex numbers and functions. Introductions to ordinary differential equations. Prerequisite: 13.

22. DIFFERENTIAL EQUATIONS

Use of series, numerical and transform methods in solving differential equations Introduction to partial differential equations. Prerequisite: 21.

32. SYMBOLIC LOGIC

Introduction to formal methods in elementary logic; propositional calculus anc simple predicate calculus. Connections with set theory and algebra. Recom mended as an elective for mathematics majors and other students planning tc pursue further work in logic and foundations. Prerequisite for 133.

52. INTRODUCTION TO MODERN ALGEBRA

Groups, fields, integral domains, applications to number theory. Polynomials and polynomial equations.

53. LINEAR ALGEBRA

Vector spaces, linear transformations, algebra of matrices, quadratic forms characteristic equations.

99. LOWER-DIVISION SEMINARS

Basic techniques of problem solving and topics in algebra, geometry, anc analysis. Fall, Winter and Spring terms.

101. A SURVEY OF GEOMETRY

Topics from projective geometry, advanced Euclidean geometry and non-Euclidean geometries.

102. ADVANCED CALCULUS I

Vector calculus, functions of several variables, elliptic integrals, line integrals uniform convergence, introduction to Fourier series.

103. ADVANCED CALCULUS II

A continuation of Mathematics 102, with additional advanced topics.

105. THEORY OF FUNCTIONS OF A COMPLEX VARIABLE

Analytic functions, Cauchy integral theorems, power series, conformal mapping Riemann surfaces. Prerequisite: 103.

107. MODERN ELEMENTARY MATHEMATICS I

Designed for in-service secondary school teachers. Topics in elementary mathematics treated in a manner emphasizing the underlying structure and fundamental concepts. (107 and 108 may not be taken to fulfill the requirements o a major in mathematics.)

08. MODERN ELEMENTARY MATHEMATICS II

A continuation of 107. This course may be taken independently of 107 upon the consent of the instructor.

11. ABSTRACT ALGEBRA I

Topics from the theory of groups. Prerequisites: 52 and 53.

12. ABSTRACT ALGEBRA II

Rings and ideals, algebraic extensions of fields, Galois Theory. Prerequisite: 111.

13. TOPOLOGY

Theory of sets, metric spaces, topological spaces, and transformations.

22. PROBABILITY AND STATISTICS I

Axioms and basic laws; independence; distributions; random variables; expectation.

23. PROBABILITY AND STATISTICS II

Statistical inference; point estimation; statistical hypotheses; analysis of variance.

133. LOGICS AND FOUNDATIONS

Deductive theories. Theories and models. Consistency, completeness, decidability. The theory of models. The cardinality of models. Some related topics of metamathematics and foundations. This course is open to upper division students of science and mathematics and to philosophy majors having sufficient logical background. Prerequisite: 32.

134. SET THEORY

Naive set theory. Cardinal and ordinal arithmetic. The axiom of choice and the continuum hypothesis. Axiomatic set theory.

144. APPLIED MATHEMATICS

Special topics in higher mathematics useful in applications to the physical sciences, such as special functions of mathematical physics. Fourier series, partial differential equations, and boundary value problems.

154. INTERMEDIATE ANALYSIS

A rigorous investigation of the real number system. Concepts of limit; continuity, differentiability of functions of one real variable; theorems of differential and integral calculus. Prerequisite: 103.

155. DIFFERENTIAL EQUATIONS

Existence and nature of solutions; oscillation theory, orthogonal functions Partial differential equations. Prerequisite: 102.

162. HISTORY AND METHODOLOGY OF MATHEMATICS

An introduction to mathematical techniques along with a survey of importar problems in mathematics with their historical background. This course is de signed for non-science students in the Honors Program.

164. COMPUTER LANGUAGES AND AUTOMATA THEORY

Investigation of various languages such as ALGOL, BASIC, APL. Turing ma chines, algorithms, and introductory simulation.

165. MATHEMATICAL STRUCTURE OF COMPUTERS

Machine language programming. Mathematical logic and logical design of digital computer.

166. NUMERICAL ANALYSIS

Interpolation formulas. Numerical differentiation and integration. Numerical solu tion of algebraic, transcendental, and differential equations. Prerequisite: 102

168. DIFFERENTIAL GEOMETRY

Introduction to curves and surfaces. Differential forms, Frenet formulas, fram fields, differentiation on surfaces. Prerequisite: 53.

170. DEVELOPMENT OF MATHEMATICS

A selection of mathematical concepts given with their historical context. Upper division standing in a science major is required.

172. PROBLEM SOLVING

Use of induction, analogy, and other techniques in solving mathematical prob lems.

175. THEORY OF NUMBERS

Fundamental theorems on divisibility, primes, congruences. Number theoreti functions. Diophantine equations. Quadratic residues. Introduction to theory o binary quadratic forms.

179. MATRIX THEORY

Linear transformations, matrices and determinants, quadratic forms, Cayley Hamilton Theorem.

0-195. INDEPENDENT STUDY

Reading and investigation for superior students under the direction of a staff member.

9. UPPER DIVISION SEMINARS

Advanced topics in algebra, geometry, or analysis. Research projects.

(Note: Some upper-division courses, e.g., 133, 134, 144, 155, 164, 165, 166, are ven only in alternate years.)

COLLEGE OF SCIENCES
DEPARTMENT OF PHYSICS

William A. Barker II, Ph.D., *Chairman*

Professors: James Albertson, S. J., William A. Barker II, John B. Drahmann, William T. Duffy, Jr., Philip T. McCormick
Associate Professor: Carl H. Hayn, S.J.
Assistant Professor: Geoffrey Fox

A minimum of nine courses beyond Physics 4, 5, 6 and 11 *or* 8, 9, 10 and 11, is equired for the Bachelor of Science degree with the major in Physics. An average rade of C or better must be maintained in courses in the major. The required courses ill normally include Physics 70, 101, 102, 111, 112, 120, 121, 122 and 170. Mathematics 02 and Chemistry 1, 2 are required of all students majoring in physics. Each student ajoring in physics must take two courses in French, German, or Russian. He must lso give evidence of a reading knowledge of one of these languages in an examination onsisting of the translation of selected articles from physics journals.

Students with an interest in physics should obtain from the department a copy of Information for Majors." They are encouraged to discuss career opportunities and urricula with their academic advisor and with members of the physics staff. Some tudents who major in physics as undergraduates enter graduate schools for more adanced work leading to the M.S. or Ph.D. degrees. Others become teachers in secondry schools or find employment in government or industrial laboratories. Much current esearch, both pure and applied, tends to cut across the traditional academic discilines, and the broad training of physics with its stress on fundamentals is particularly nd uniquely valuable. A secondary school teaching credential may be obtained in a ive-year program in cooperation with the department of education.

Honors Program

Students majoring in physics may participate in the University Honors Progra The Department of Physics offers several courses specifically limited to Honors studer or physics majors. They include Physics 8, 9, 10, 90, 99, 190, and 199. The courses Physics Research and Independent Study in Physics offer the Honors Student or physi major an unusual opportunity. The student who elects these courses will work experimental or theoretical research under the close supervision of one of the physi faculty. This may involve research performed in a cooperative effort with industry the government. The student thereby gains valuable experience in the methods a techniques used in modern physics research. He is required to present his results a conclusions in a paper delivered to the Physics Department Colloquium.

1. GENERAL PHYSICS I

Mechanics, heat and electricity. Laboratory. Prerequisite: Mathematics 1 equivalent.

2. GENERAL PHYSICS II

Magnetism Electromagnetic Waves. Relativity. Quantum Mechanics. Partic physics. Laboratory. Prerequisite: 1.

3. INTRODUCTION TO ASTRONOMY

Descriptive study of solar system, stellar astronomy, the galaxy, the univers Demonstrations and observations with 8-inch and 16-inch refracting telescope Restricted to students not majoring in Physics, Chemistry, Biology, or Enginee ing. Laboratory. Prerequisites: elementary algebra and geometry.

4. PHYSICS FOR SCIENTISTS AND ENGINEERS I

Vectors. One- and two-dimensional motion. Particle dynamics. Work and energ Conservation of energy and linear momentum. Rotational motion. Statics. Osc latory motion. Gravitation. Fluid statics. Laboratory. Prerequisites: Mathemati 11, 12. (Mathematics 12 may be taken concurrently.)

5. PHYSICS FOR SCIENTISTS AND ENGINEERS II

Waves in elastic media. Heat. First and Second Laws of thermodynamics. Charg and matter. Electric field. Potential. Electromagnetic force. Current. Magnet field. Laboratory. Prerequisites: 4, Mathematics 13 (may be taken concurrently

6. PHYSICS FOR SCIENTISTS AND ENGINEERS III

Ampere's Law. Faraday's Law. Magnetic properties of matter. Electromagnet oscillations and waves. Reflection and refraction. Interference, diffraction, an polarization of light. Laboratory. Prerequisites: 5, Mathematics 21 (may be take concurrently).

8. FUNDAMENTALS OF PHYSICS I (Physics Majors and Honors)

Vectors. Galilean invariance. Particle dynamics. Energy. Momentum. Harmonic oscillator. Rigid-body dynamics. Central forces. Laboratory. Prerequisites: Mathematics 11, 12 (may be taken concurrently).

9. FUNDAMENTALS OF PHYSICS II (Physics Majors and Honors)

Speed of light. Lorentz transformation of length and time. Relativistic momentum and energy. Relativistic dynamics. Electrostatics: charges and fields. Electric potential. Electric fields around conductors. Laboratory. Prerequisites: 8, Mathematics 13 (may be taken concurrently).

10. FUNDAMENTALS OF PHYSICS III (Physics Majors and Honors)

Electric currents. Fields of moving charges. Magnetic field. Electromagnetic induction and Maxwell's equations. Alternating current circuits. Electric fields in matter. Magnetic fields in matter. Laboratory. Prerequisite: 9.

11. PHYSICS FOR SCIENTISTS AND ENGINEERS IV

Elementary modern physics. Special relativity. Quantum effects. Hydrogen atom. Many-electron atoms. X-rays. Nuclear structure. Nuclear reactions. Molecular and solid-state physics. Laboratory. Prerequisite: 6 or 10.

70. ELECTRONIC CIRCUITS FOR SCIENTISTS I

Linear electric circuits. Phasor analysis, transients and Fourier series. Network theorems. Junction diodes, junction triodes and field effect transistors. Voltage and power amplifiers. Noise. Laboratory. Prerequisite: 6.

90. UNDERGRADUATE PHYSICS RESEARCH

Departmental work under close professional direction on research in progress. Prerequisite: permission of the professor directing the research must be secured before registering for this course.

99. INDEPENDENT STUDY IN PHYSICS

Detailed investigation of some area or topic in physics which is not covered in the regular courses, supervised by a faculty member. Prerequisite: permission of the professor directing the study must be secured before registering for this course.

101. ELECTROMAGNETIC THEORY I

Electrostatic fields. Laplace's and Poisson's equations. Dielectrics. Magnetic fields of steady currents. Induced electromotive forces. Magnetic energy. Magnetic materials. Prerequisite: 6.

102. ELECTROMAGNETIC THEORY II

Maxwell's equations. Plane waves in free space and in matter. Reflection an refraction. Interference and diffraction. Polarization. Guided waves. Radiatic of electromagnetic waves. Prerequisite: 101.

111. CLASSICAL MECHANICS I

Matrices and vectors. Vector calculus. Newtonian mechanics. Special relativit Gravitational attraction and potential. Oscillatory motion. Nonlinear oscillation Calculus of variations. Prerequisite: 4 or 8.

112. CLASSICAL MECHANICS II

Hamilton's principle. Lagrangian and Hamiltonian dynamics. Central-force mo tion. Two-particle collisions. Noninertial reference frames. Rigid-body dynamic Small oscillations and normal coordinates. One-dimensional wave equatio Prerequisite: 111.

116. PHYSICS OF SOLIDS

Properties of metals, semiconductors, paramagnetics, and superconductor Prerequisites: 121, 180 (may be taken concurrently).

120. THERMAL PHYSICS

Characteristic features of macroscopic systems. Statistical description of sys tems of particles. Thermal interaction. Microscopic theory and macroscopi measurements. Canonical distribution in the classical approximation. Genera thermodynamic interaction. Elementary kinetic theory of transport processes

121. ATOMIC AND NUCLEAR PHYSICS I

Review of special relativity. Bohr atom. Particles and waves. Schroedinger' theory of quantum mechanics and applications. Perturbation theory. One-elec tron atoms. Laboratory. Prerequisite: 11.

122. ATOMIC AND NUCLEAR PHYSICS II

Magnetic Moments. Spin. Identical particles. Many-electron atoms. X-rays. Co lision theory. Nuclear models. Alpha, beta, and gamma decay. Nuclear reactions Nuclear forces. Laboratory. Prerequisite: 121.

131. METHODS OF MATHEMATICAL PHYSICS I

Types of fields. Equations governing fields. Fields and the variational principle Functions of a complex variable. Prerequisite: Mathematics 102. NCX*

132. METHODS OF MATHEMATICAL PHYSICS II

Ordinary differential equations. Boundary conditions and eigenfunctions. Ma trices and vector spaces. Prerequisite: 131. NCX*

70. ELECTRONIC CIRCUITS FOR SCIENTISTS II

Feedback and servomechanisms. Operational amplifiers and analogue computation. Oscillators. Modulation and detection. Transmission lines. Pulse and digital circuits. Laboratory. Prerequisite: 70.

30. QUANTUM MECHANICS

Foundations of wave mechanics. Linear operators and eigenfunctions. Elementary theory of elastic scattering. Matrix mechanics and theory of angular momentum. Perturbation theory and theory of radiative transitions. Prerequisite: Mathematics 102. NCX*

90. UNDERGRADUATE PHYSICS RESEARCH

Departmental work under close professional direction on research in progress. Prerequisite: permission of the professor directing the research must be secured before registering for this course.

99. INDEPENDENT STUDY IN PHYSICS

Detailed investigation of some area or topic in physics which is not covered in the regular courses, supervised by a faculty member. Prerequisite: permission of the professor directing the study must be secured before registering for this course.

COLLEGE OF SCIENCES

DEPARTMENT OF POLITICAL SCIENCE

Bernard L. Kronick, Ph.D., *Acting Chairman*

Professors: Bernard L. Kronick, Charles N. R. McCoy
Associate Professors: Stephen Jurika, Jr., Richard Roberts, S.J.
Assistant Professor: Bruce D. Hamlett
Visiting Professor: J. Malcolm Smith
Visiting Lecturer: Donald E. Turner, S.J.

Instruction in the Department of Political Science is designed to (1) offer all students courses planned to introduce them to the political aspects of society, to exercise them in the analysis of political problems, and to equip them as responsible citizens; (2) concentrate on providing undergraduate majors with a special program of studies leading to the B.S. degree in political science as a foundation for a liberal education; (3) prepare students for careers in the public service.

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*Exempted from challenge.

The minimum requirements for recommendation for the degree of Bachelor o Science with political science as the major subject are:

1. Registration as a major student in the department for at least two quarters, C average or better in all requirements for the major, and a minimum of fou term courses of work offered by this Department.
2. The completion of nine term courses in political science, including:
   a) Political Science I and Political Science 2.
   b) Political Science 110.
   c) An advanced course in at least three of the following fields: comparativ politics, international relations, American government and institutions, an political theory.
   d) A senior seminar in one of the fields of political science.

Honors Program

The Honors Program provides well-qualified students with special opportunitie for training and research in political science through seminars, tutorials and small-scal research projects.

Application for admission to the Honors Program normally should be made in th sophomore year. Applicants must have achieved a 3.00 average or better in all Uni versity work, and a 3.30 average or better in political science courses.

Honors candidates will complete all requirements for a major in political scienc and will also submit a senior project during their senior year. Graduation with Honor in Political Science will require (1) a 3.00 average or better in all University work (2) a 3.30 average or better in political science; (3) the submission of an acceptabl senior project; and (4) completion of 99, 188, and 189. Interested students shoul consult the Chairman.

I. Introductory Courses

1. INTRODUCTION TO AMERICAN GOVERNMENT

The underlying principles of the American federal state. Basic ideas of America politics. The structure and powers of the American national government. Prin ciples of the California constitution and government.

2. INTRODUCTION TO COMPARATIVE POLITICS

Government and politics in Great Britain, France, Germany, and Russia. Empha sis upon the development of analytical abilities and critical skills in the evalua tion of political behavior, processes, and institutions.

10. PRINCIPLES OF GOVERNMENT

The nature, origin, and justification of the state. Organization, powers an functions of government. The fundamental questions of politics examined i terms of the natural law and the common good.

5. INTRODUCTION TO INTERNATIONAL RELATIONS

Origins, forms and forces of the state system. The dynamic elements: power, nationalism, sovereignty, colonialism, imperialism; theories of war and peace. Contemporary problems and case studies.

0. FRESHMAN SEMINAR

Major issues of domestic and/or international policies. Specific course subject matter announced prior to registration. Limited to twelve students. Permission of instructor required.

9. SOPHOMORE COLLOQUIUM IN POLITICAL SCIENCE

Restricted to sophomore political science majors. (Selected problems in political studies.) Methods and theory of political analysis. Specific course subject matter announced prior to registration.

II. Political Theory

0. CLASSICS OF POLITICAL THOUGHT AND MODERN POLITICAL ANALYSIS

The relevance of the classics of political thought for understanding modern scholarship in political science.

1. AQUINAS AND POLITICS

A consideration of the main elements of the political thought of St. Thomas and its relevance to modern political and legal problems. Attention will be given to some modern departures from his thinking.

2. POLITICAL PHILOSOPHY: THE MODERN PERIOD

From Marsiglio of Padua and Machiavelli through Hobbes, Locke and Rousseau. Their relation to political development and to modern issues.

3. POLITICAL PHILOSOPHY: THE CONTEMPORARY PERIOD

From the Utilitarians and Marx to the present. The relation of these doctrines to current political problems.

4. MODERN POLITICAL ANALYSIS

Survey of modern empirical studies of various aspects of political behavior. Will evaluate the theoretical contributions of several contemporary political scientists, particularly as they relate to the problems of political change and development.

6. LAW IN SOCIETY

Public policies and the decision-making process; legislative-judicial involvement in the administrative process; socioeconomic changes in the administrative process. Prerequisite: 1.

III. International Relations

127. COMPARATIVE FOREIGN POLICIES

Comprehensive comparative study of the foreign policies of several nation-state including Great Britain, France, Germany and China. Interaction of internatior and domestic politics on foreign policy formulation and implementation.

128. AMERICAN FOREIGN POLICY

The conduct and control of American foreign policy as illustrated by the ma trends and crises of the last twenty years.

129. SOVIET FOREIGN POLICY

An analysis of Soviet foreign policy within both the communist world and tl international political system. Consideration of impact of ideology on poli formulation. Particular consideration of Sino-Soviet dispute.

130. THE DEVELOPING NATIONS

A multi-disciplinary study of the problems and politics of political developme in Latin American, Africa and/or Asia. Case studies of the Communistic ar Capitalistic approaches to political development. Impact of international politi on internal development.

135. FAR EASTERN INTERNATIONAL RELATIONS

Domestic and international political developments in the Far East from 1900 the present. Emphasis on China, Japan, Korea, and Southeast Asia. Survey cultures, and institutions.

IV. Comparative Politics

141. COMPARATIVE POLITICAL BIOGRAPHY

Political biography as a function of modern political and behavioral scienc Value judgments and scientific inquiries. Activist and academic perceptions roles. Cultural and time factors.

142. MAIN FORCES IN BRITISH POLITICS

An analysis of the nature, structure, and utilization of political power in Gre Britain. Institutional, cultural and psychological aspects of politics are treate Focus on problems of economic and constitutional modernizations.

144. MAIN FORCES IN EUROPEAN POLITICS

An analysis of the nature, structure, and utilization of political power in repr sentative continental European states. Institutional, ideological, cultural, ar psychological aspects of politics are treated. Emphasis upon problems of poli cal stability and social change.

5. MAIN FORCES IN SOVIET POLITICS

An analysis of the Soviet political system and its ideological premises. The origin and development of the Soviet party-state and its processes of government and politics.

9. MAIN FORCES IN AMERICAN POLITICS

A survey of demographic, institutional, cultural, economic and psychological aspects of American political life. The nature, structure, and utilization of political power are emphasized.

V. American Government and Institutions

0. THE AMERICAN POLITY

Advanced survey of American government. Studies in depth of the Presidency and Congress. Relations among the national, state, and local levels of government. Select problems, programs, and policies.

2. U.S. POLITICAL PARTIES

Origin, organization, and activities of U.S. political parties. Work of politicians, bosses, and machines. Government regulations and possible subsidy of parties. Election law and administration. Prerequisite: 1.

3. AMERICAN POLITICAL BIOGRAPHY

The American political tradition and those who helped mould it; the roles they played, the nature of their contribution; their place in the intellectual and cultural pattern of the time.

7. AMERICAN CONSTITUTIONAL DEVELOPMENT I

Historical treatment spanning 1607–1890. Topics include English and colonial constitutional heritage; U.S. Constitution, 1789; landmark cases interpreting the Constitution; nature of the Union; slavery; Civil War; rise of judicial restraints on legislative economic regulation. Prerequisite: 1 or equivalent.

8. AMERICAN CONSTITUTIONAL DEVELOPMENT II

Historical treatment spanning 1890 to present. Topics include heyday and decline of judicial restraints on legislative economic regulation; judicial sanction to extensive national economic regulation; the Constitution in two World Wars; the Supreme Court's modern emphasis on civil liberties. Prerequisite: 1 or equivalent.

2. U.S. MUNICIPAL GOVERNMENT

The development of the modern city. Relations of city government to other governmental units. Municipal politics. Types of municipal government. Current municipal problems. City and regional planning. Finance. Law enforcement.

163. U.S. STATE GOVERNMENT

The development of state constitutions. Federal-state relations. Politics ar elections. The legislative process. The courts. County government. The organiz tion and current major problems of state administrative system.

165. PUBLIC ADMINISTRATION IN THE U.S.

Survey of the field of public administration: organizational theory, executi leadership, personnel administration, finance, administrative law, administrati responsibility. Examples from various levels of American government.

VI. Senior Course Work

187. COLLOQUIUM

Group meetings for reading, research and discussion of selected political pro lems.

- **187.01 American Politics**
- **187.02 Comparative Politics**
- **187.03 International Politics**
- **187.04 Political Philosophy**
- **187.05 Empirical Political Analysis**

188. ADVANCED POLITICAL SCIENCE

A team taught reading course examining some of the major works in the variou aspects of political science.

189. SCOPE AND METHODS OF POLITICAL SCIENCE

Consideration of the history, methodology and focus of research in politic science. The development and implications of the behavioral sciences for th study of politics.

190. HONORS SENIOR PROJECT

For senior honors students working under the direction of political scienc faculty in preparation of senior project.

191. SEMINAR IN POLITICAL PHILOSOPHY

A consideration of the foundations of twentieth century political thought.

192. SEMINAR IN CHURCH AND STATE

Traditional theories of Church and State are examined and evaluated in lig of contemporary orientation of the problem of the relation of religion to secul life.

. **SEMINAR IN INTERNATIONAL ORGANIZATIONS**

Institutionalization of international politics; development, principles, and procedures of international political, administrative and judicial organzations, emphasizing capabilities for management of power, settlement of disputes, and peaceful change.

. **SEMINAR IN MILITARY STRATEGY AND NATIONAL POLICY**

Strategy and policy-making for United States national security, with special study of the substance and shadow of governmental processes by which policy is made. Case study of six major crises, relating military strategy and American foreign policy.

. **SEMINAR IN COMPARATIVE POLITICS**

Psychological and sociological aspects of individual and group behavior in politics. Analysis of political participation and socialization, voting behavior, ideology, extreme affiliation, leadership, personality factors, public opinion, and group influences.

5. **SEMINAR IN INTERNATIONAL RELATIONS**

A consideration of selected aspects of international political behavior.

7. **SEMINAR IN CIVIL LIBERTIES**

Open to political science majors, and others by permission of the instructor.

8. **DIRECTED READING**

For students who wish to do intensive reading in areas not emphasized by the Department or to do further independent study on specific topics not fully covered in upper division courses.

9. **TASK FORCE IN INTERNATIONAL RELATIONS**

A task force approach to the study of specific international political problems. Research findings will be presented to the campus community by means of carefully prepared briefings. Admission to the course by permission of the instructor.

COLLEGE OF SCIENCES
DEPARTMENT OF PSYCHOLOGY

Roland C. Lowe, Ph.D., *Chairman*

Assistant Professors: Roland C. Lowe, Marvin L. Schroth, Wendell J. Goesling, Leo P. Rock, S.J., William C. Horne
Visiting Lecturer: Eleanor W. Willemsen

Students majoring in Psychology, in addition to fulfilling the general requireme for a Bachelor of Science degree, must successfully complete the following cours Mathematics 6 and 7, Sociology 1, Biology 2 and 20, Physics 1, Chemistry 1, 8 or Philosophy 124, Anthropology 2 or 3, Psychology 1, 10, 11, 100, 110, two of 120, 1 and 165, two of 115, 135 and 150, one additional psychology elective, and one ad tional upper division Biology elective.

Honors Program

The department of Psychology provides a special program designed to meet t needs of those students showing exceptional scholastic promise and likelihood of co tinuing on to psychology graduate school.

The Honors student will become involved in the following special programs:

1. Special seminars in the department.
2. Ongoing research being conducted by staff members and psychology majo
3. An independent piece of research in the senior year.
4. Attendance in courses in other departments selected to broaden the studen background.

1. GENERAL PSYCHOLOGY

Introduction to the scientific study of behavior. Topics covered include perce tion, motivation, intelligence and abnormal behavior.

10. PSYCHOLOGY AS A NEUTRAL SCIENCE

The scientific study of human and animal behavior in terms of sensation, pe ception, learning, motivation, and emotion. Emphasis also placed on the physi logical bases of behavior. Introduction to research methodology and statistic analysis of data. Psychology majors only.

11. PSYCHOLOGY AS A SOCIAL SCIENCE

Principles of human development, intelligence, abilities, personality. Psych logical measurement. Sociopsychological influences on behavior. Further e posure to research methodology and additional statistical techniques. Ps chology majors only.

50. PSYCHOLOGY OF ADJUSTMENT

An introduction to the psychology of personal and social adjustment. Personali patterns of the individual in various contexts, such as family, the school, ma riage, the adolescent years, social relations.

). CHILD PSYCHOLOGY

An analysis of the psychological development of the child in relation to biological, physical, and sociological antecedent conditions from infancy to adolescence.

). STATISTICAL AND EXPERIMENTAL DESIGN I

Statistical theory, methods, and principles underlying psychological experimentation and measurement. Indices of location and variability, sampling theory and statistical inference. Correlational theory. Prerequisites: 1, 10, 11.

). EXPERIMENTAL PSYCHOLOGY I

A survey of the experimental literature in learning, motivation, sensation and perception, and social behavior. Application of experimental design and statistics. Lectures and laboratory. Prerequisite: 100.

2. MOTIVATION AND EMOTIONS

The scientific study of the various motivational-emotional processes of man and higher animals. How motives and emotions initiate or direct behavior.

5. INTRODUCTION TO ABNORMAL PSYCHOLOGY

A comprehensive treatment of the major forms of mental disorder with regard to their etiology, nature, development, and therapy. Current theories of mental disease. The psychology of abnormal thinking.

20. EXPERIMENTAL PSYCHOLOGY II

Advanced experimental investigation of various subareas in psychology, including perception and psychophysics, conditioning and animal studies of learning. Individually tailored laboratory research projects required. Prerequisites: 100 and 110.

30. PSYCHOLOGY OF LEARNING AND THOUGHT PROCESSES

A survey of the experimental literature on the basic forms of the learning process. Demonstrations in creative problem solving. The nature of concept formation. Prerequisite: 100.

35. DEVELOPMENTAL PSYCHOLOGY

Basic concepts of human behavior from conception to death. Emphasis on physical, social, emotional and intellectual development. Introduction to theory of family interaction and impact on individual development. Prerequisite: 1.

40. RESEARCH IN CHILD PSYCHOLOGY

Application of research methodologies to study of child development. Individual research projects required. Prerequisite: 100 and 110.

145. ASSESSMENT OF HUMAN ABILITIES

Theory, measurement, and nature of abilities. Individual differences in abili skill and productivity. Relation of ability to other personality variables.

150. SOCIAL PSYCHOLOGY

Critical analysis of interrelationships between culture and personality. Formati of the social self. Interpersonal relations. Role theory and behavior.

160. THEORIES OF PERSONALITY

Critical analysis of major theories of personality with emphasis on practical ar research implications. NCX*

165. PHYSIOLOGICAL PSYCHOLOGY

Physiological bases of behavior and experience in terms of neural, glandula and visceral processes. Neurophysiological correlates of behavior with emph sis on motivation and learning. Lectures and laboratory. Prerequisite: permissi of instructor.

170. SYSTEMS, THEORIES, AND MODELS IN PSYCHOLOGY

Origin and development of modern psychology. Structuralism, Functionalisr Behaviorism, Gestalt Psychology in terms of sensation, perception, learnin thinking, etc. Miniature systems and models. NCX*

180. SEMINAR IN THE PSYCHOLOGY OF PERCEPTION

A series of assigned readings and reports from classic and contempora sources in the experimental and theoretical literature on perception. Investig tion of special problems. NCX*

182. SEMINAR IN THE PSYCHOLOGY OF MOTIVATION

A series of assigned readings and reports from classic and contempora sources in the experimental and theoretical literature on motivation. Investig tion of special problems. NCX*

184. SEMINAR IN THE PSYCHOLOGY OF LEARNING

A series of assigned readings and reports from classic and contempora sources in the experimental and theoretical literature on learning and thinkin NCX*

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*Exempted from challenge.

NB: Upper-division credit in psychology may be given for Sociology 150.

0. INDEPENDENT RESEARCH

Independent projects for special senior students involving both experimental and theoretical research. NCX*

5. ADVANCED SEMINAR

Intensive focus on selected topics which vary from year to year.

9. PRACTICUM

Research and clinical experience in community agencies. Involves selected readings under supervision.

COLLEGE OF SCIENCES
SOCIAL SCIENCES DIVISION

Witold Krassowski, Ph.D., *Director*

Associate Professor: Stephen Jurika, Jr.
Assistant Professors: Richard L. Berg, Kichiro K. Iwamoto

The Social Sciences Division in the College of Sciences includes the Departments f Economics, Political Science, Psychology and Sociology, and the areas of Anthro- ology, Geography and History. The primary objective of the Division is to promote ne fullest development of its component disciplines both as separate areas of inquiry nd as contributing elements in the interdisciplinary understanding of social phenomena nd social problems.

To this end, the several disciplines which comprise the Social Sciences have ntered into a cooperative endeavor aimed at achieving the benefits of mutual collabor- tion, while at the same time assuring to each of the disciplines the fullest possible pportunity and the most propitious environment for intellectual growth and scholarly chievement.

All students majoring in the Social Sciences must fulfill the following essent preprofessional and research courses:

Area of Emphasis	*Mathematics and Statistic Requirements*
Anthropology	2 Mathematics & 1 Statistics courses
Economics	2 Mathematics & 1 Statistics courses
History	1 Mathematics & 1 Statistics courses
Political Science	On advice from the Department Chairman sor students may take one Mathematics course a one Statistics course, other students will ta only one Mathematics course.
Psychology	2 Mathematics & 2 Statistics courses
Sociology	2 Mathematics & 1 Statistics courses

Divisional Major in Social Sciences

The Social Sciences major will be terminated with the graduating class of 197 Students who are presently majoring in Social Science will be able to complete the work in this major. The new and transfer students entering Santa Clara with the b ginning of the 1970-71 academic year will not be admitted to the Social Science maj program but they will be expected to major within an academic department of the choice.

The Division offers a major in Social Sciences which combines three of the s social sciences. Students who wish to major in Social Sciences, besides fulfilling th general requirements of the College of Sciences, must complete the following lowe division courses: 3 courses chosen from: Anthropology 3, Economics 1, Political Sc ence 1, Psychology 1, and Sociology 1, in addition to the above stated Mathematics ar Statistics requirements. Students who select History as their major area of emphas must complete three lower-division prerequisites, chosen from History 4, 5, 21-2 and/or History 17, 18, 71-75, 81 and 82. Their upper-division work must include fou upper-division courses in one social science (major area of emphasis), two uppe division courses each in two other social sciences for which they have prerequisite (minor areas of emphasis), and include an appropriate course in Research Meth odology.

The Chairman of the Department which the student selects as his area of co centration is the student's academic advisor. He must approve the selection of a courses in the social sciences. An average grade of C must be maintained in a courses of the major.

1. HUMAN GEOGRAPHY

World survey of man's occupation and utilization of the earth. Basic interrela tions of human life and elements of natural environment.

4. ECONOMIC GEOGRAPHY

Relation, from the world point of view, of man's industries (agriculture, lumbe ing, mining and quarrying, manufacturing, transportation, commerce) to th natural environment.

5. WORLD REGIONS—CONTEMPORARY PROBLEMS

Types and distribution of political systems in selected regions; factors which affect political power; areas of conflict and arbitration.

55. PRINCIPLES OF STATISTICS

Introduction to statistical methods and techniques of elementary statistical analysis. Nature of data, logic of statistical induction, inherent limitations. Averages, variations, index numbers. NCX*

101. POLITICAL GEOGRAPHY

Geographical patterns of major nations; territorial structure, resources, industry, communications, national aspirations. Role of the United States. Providing a base for analyzing international trends.

107. GEOGRAPHY OF ASIA

110. GEOGRAPHY OF LATIN AMERICA

190. SOCIAL SCIENCE SEMINAR

An intensive study of major social issues characteristic of modern and developing societies. NCX*

* Exempted from challenge.

COLLEGE OF SCIENCES
DEPARTMENT OF SOCIOLOGY

Witold Krassowski, Ph.D., *Chairman*

Professor: Witold Krassowski
Associate Professor: Paul Verden
Assistant Professors: Robert Feinbaum, Kichiro K. Iwamoto, Eugene Lehr
Acting Assistant Professor: Mark Sanford

The scholastic policy of the Department aims at the study of Sociology by stressing the scientific aspects of the discipline, rather than the melioristic or all-inclusive philosophical approaches.

Students who wish to make Sociology their major subject, besides completing the other general requirements of the College of Sciences and of the Department, must pass 1, 18, 19, 20 and 55 with an average grade of "C".

The major program must include eight courses of upper-division work in Sociology. All other courses selected in the major must have the approval of the Chairman of the Department or the student's Academic Counselor. The student must maintain an average grade of C in the courses in the major.

Students who intend to go into primary or secondary school teaching, and who wish to make Sociology their teaching minor, in order to fulfill the state teaching requirement, should, in addition to completing 1, select a minimum of four upper division courses from among the following: Sociology 110, 129, 143, 150, 156, 159, 161, 165, 170, and 171.

Honors Program

Outstanding students in Sociology will be invited to participate in the Honors Program. This four-year program will provide students with particularly challenging and stimulating learning experiences corresponding to their academic potential.

Students involved in the Honors Program will take full advantage of specially developed approaches to learning, as well as the most advanced learning techniques. Students participating in the Honors Program

1. Will be expected to take certain advanced courses in the department offered only for exceptional students.
2. Will attend special sections in required courses.
3. Will be permitted to take full advantage of independent and seminar study techniques; they will be invited to participate in the seminars instituted for outstanding students.
4. Will receive careful and complete attention of the departmental faculty in the design and execution of research projects geared to the individual interests of the student, and they will be encouraged to participate in the departmental research projects, working with, and under the special supervision and guidance of, the professors of their major department.
5. Will be required to initiate, develop, and report on an independent thesis project and complete the Graduate Record Examination in Sociology.

1. PRINCIPLES OF SOCIOLOGY

An introduction to the field of sociology with applications of sociological principles to our present society.

11. SOCIETY AND THE INDIVIDUAL

The study of individuals in their groups and society. Topics include personality, values, role playing, and conformity. Not for sociology majors.

12. MODERN SOCIOLOGICAL PERSPECTIVES

This course will attempt to develop ways of looking at the quality of life in modern society. Attention will focus primarily on the social consequences of technology, bureaucracy and mass education. Perspectives on the future will also be emphasized.

13. AMERICAN SOCIETY—WHAT'S HAPPENING

A mutual exploration of the potential and limitations of the sociological perspective for enhancing personal liberation within the constraints of an advanced industrial civilization.

18. STRATEGIES OF SOCIAL INQUIRY

A jointly taught course focusing on the principal social theories, questions they were trying to answer, and the relations to methodological principles. For Sociology majors only.

19. TECHNIQUES OF SOCIAL INQUIRY

Participant observation, intervention, questionnaires, content analysis, and laboratory experiments. Several of these techniques are actually used to gather and analyze data.

20. LOGIC OF SOCIAL INQUIRY

Analysis and discussion of how scientific method may be used in sociology. For Sociology majors only.

55. PRINCIPLES OF STATISTICS

Introduction to statistical methods and techniques of elementary statistical analysis. Nature of data, logic of statistical induction, inherent limitations. Averages, variations, index numbers. NCX*

106. ENGINEERING AND THE TECHNOLOGICAL SOCIETY

Engineering as a discipline. The foundation concepts of engineering. The history and development of western technology. The impact on society and the social consequences of engineering and technology. Automation and the computer revolution.

107. SOCIAL CONTROL

Institutions, organizations and behavior aimed at the control of deviant behavior. Prisons, mental hospitals, and "self-help" groups contrasted in their impact on deviant behavior.

110. INTERGROUP RELATIONS

Prejudice and discrimination toward minorities, with particular emphasis upon the current situation in the United States.

117. ADVANCED RESEARCH METHODS

The formulaton and design of research investigations. Definition of the problem, hypothesis testing, development of research design, measurement, data gathering, and analysis and interpretation of findings. NCX*

119. POLITICAL SOCIOLOGY

Conflict, consensus, coercion and authority. The study of the relationship between the social structure and the political order. The social bases of political parties, political movements and the state.

120. COLLECTIVE BEHAVIOR

Analytical study of collective behavior principles; typology of crowds, mass behavior and the characteristics of publics. Introduction to social movements.

124. SOCIOLOGY OF SOCIAL WELFARE

The development of social welfare in the United States, the specific programs of public assistance and social insurance that make up the nation's current welfare system. The future of the welfare state, a comparison of America's conceptions of welfare with those in other parts of the world. For those planning to enter the welfare field.

129. THE PROCESS OF COMMUNICATION

Communication as a sociopsychological and cultural process. Communication patterns in small groups, and in large organizations. Organization, functions, and development of mass media. Comparisons of systems.

132. SOCIAL STRATIFICATION

Social classes in local communities and the nation.

143. URBAN SOCIOLOGY

Urbanization, its nature, causes, and consequences. Growth and structure of metropolitan areas. Decision-making in cities. New patterns of urban government.

147. SOCIOLOGY OF INDUSTRY

Social organization of the work-plant society. Work groups and work relations in formal and informal organizational structures. Industrial conflict: union and management in an interdependent society.

148. SOCIOLOGY OF COMPLEX ORGANIZATIONS

Critical analysis of administrative, economic, and political organizations; their role in modern societies. Structures, functions, and disfunctions. Leadership in specialized interdependent organizations.

150. SOCIAL PSYCHOLOGY

Use of psychological principles in understanding the social behavior of individuals. Topics include self-concept, social roles, and conformity. NCX*

156. FAMILY AND KINSHIP

Marriage, the family, and kinship are studied both in our own society and in cross-cultural perspective.

159. SOCIOLOGY OF EDUCATION

The socio-psychological aspects of educational processes and educational institutions in a changing society.

161. SMALL GROUPS

The small group as a research technique and as a social process. Interpersonal influence, social learning, and change in group structure. Experimental demonstrations and class problems. NCX*

165. DEVIANT BEHAVIOR

Examination of such deviant behavior as crime, mental disorder, and alcoholism. Social factors in the etiology and control of deviant behavior.

169. POPULAR CULTURE

A socio-historical analysis of shifting current and significant trends in the development of popular mass cultural activities in America from 1900. Special emphasis will be given to the continued presence of folk and ethnic art forms (including music, dance and humor) and the emergence of a mass entertainment industry.

170. SOCIAL CHANGE

Significant trends and issues in contemporary American society and in the world. The utility of sociological concepts and principles in understanding contemporary society.

171. DEMOGRAPHY

The demographic issues of the modern world: patterns of population growth, problems of quantity, composition, distribution, and quality, and population policies.

194, 195, 196. SEMINAR IN SOCIOLOGY

Courses for juniors and seniors with principal orientation towards preparatory research that would conclude with a senior thesis. Conducted as a research seminar. One offered each term. By permission of the instructor only. NCX*

197. DIRECTED READING

For students who wish to do intensive reading in areas not emphasized by the Department or to do further independent study on specific topics not fully covered in upper division courses. By permission of the instructor only. NCX*

198. INDEPENDENT STUDY

Either a teacher or research internship. The teacher internship is primarily for those students who plan to enter teaching as a career and they will work under close direction of the faculty member who offers the Principles of Sociology course. The research internship will involve student participation in an on-going research project or the development and execution of a student research project under the direction and supervision of a faculty member. By permission of the instructor only. NCX*

199. PRACTICUM

Opportunity for selected juniors and seniors to work in community agencies, government bureaus and political or industrial organizations. May be taken in the winter term on a part-time basis as a one or two term course equivalent or on a full-time basis as a three-term course. Admission by invitation only. NCX*

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* Exempted from challenge.

NB: Upper-division credit in Sociology may be given for the following courses: Psychology 150, Religious Studies 160.

SCHOOL OF BUSINESS

Charles J. Dirksen, M.S.C., LL.D., *Dean*

Method of Instruction

Students learn through doing. Cases, problems, and discussions supplement in large measure the lecture method.

The students must serve as active participants in class discussions. They must learn how to analyze business problems in a great variety of situations. In so doing, they develop the ability and aptitude to evaluate a business problem and to decide on what course of action to follow.

Undergraduate Program

The program leading to a degree of Bachelor of Science in Commerce consists of a total of 40 term courses. To fulfill the residence requirement, at least seven term courses must be taken normally in the year immediately preceding the awarding of the Bachelor's degree. Transfer students who attend the University only in their senior year shall complete nine term courses as a residence requirement.

During the first two years, extreme specialization is not the aim of the school. Rather, the student is trained in the fundamentals of English, mathematics, economics, accounting, and philosophy so that he will be well prepared to analyze and study the technical and special problems of business.

During the junior and senior years, the program is arranged so that every student will include courses in the major functions found in typical business firms.

Special and advanced work is given in accounting, administration, economics, finance, management, marketing, and quantitative methods, so that students may specialize in some specific area. As an example, majors in accounting may take the required work to prepare for the Certified Public Accounting examination.

Honors Program

During the freshman and sophomore years, students will be assigned to honors sections which will be offered for students in the School of Business and in the Colleges of Humanities and Sciences. During the junior and senior years, special honors sections will be supervised by the various departments in the School of Business.

In order to qualify for the Honors Program, students in the School of Business must rank in the upper ten percent of the class in which they are enrolled and be accepted by the University Honors Committee.

SCHOOL OF BUSINESS

DEPARTMENT OF ACCOUNTING

John Pagani, Ph.D., *Chairman*

Professor: John Pagani
Associate Professor: Charles F. Louie
Assistant Professor: Paul V. Harrell
Acting Assistant Professor: Marlynn K. Bohman
Lecturers: Norman L. Amy, Louis F. Boitano

Required: 130, 131, 132, 133 plus any other accounting course; Economics 115. Those preparing for professional accounting careers should include 134, 135, 137 and 138.

1. FUNDAMENTALS OF ACCOUNTING

Constructive aspects of accounting with attention centered on the general ledger and its manipulation.

2. FUNDAMENTALS OF ACCOUNTING

The financial cycle and its interpretation as seen through accounts. Prerequisite: 1.

3. FUNDAMENTALS OF ACCOUNTING

Managerial accounting as viewed through the analysis of costs. Prerequisite: 2.

55. ACCOUNTING IN THE SOCIAL SCIENCES

The analytical framework of accounting with reference to the social sciences.

130. ACCOUNTING PRINCIPLES I

Valuation in financial accounting. Prerequisite: 2.

131. ACCOUNTING PRINCIPLES II

Valuation in financial accounting. Prerequisite: 130.

132. ACCOUNTING PRINCIPLES III

Accounting for proprietory interests. Prerequisite: 131.

133. ACCOUNTING PRINCIPLES IV

Accounting for proprietory interests. Prerequisite: 132.

134. ACCOUNTING ANALYSIS

Interpretation of accounts in terms of funds and costs. Prerequisite: 3.

35. ACCOUNTING PROBLEMS

Analysis of complex accounting problems. Prerequisite: 132.

36. COST ANALYSIS

Standard costs and budgetary techniques for cost control. Cost and profit analyses for decision-making purposes, including direct costing, profit-volume analysis, and break-even analysis. Prerequisite: 3.

37. AUDITING

The techniques of external auditing, which are based upon the purpose of an audit and upon the conventional standards to which these techniques should conform.

38. INCOME TAXATION I

Federal income tax practice and theory applied to the determination of tax liability of the individual. Similarities and differences, when appropriate, are indicated for partnerships and corporations.

39. INCOME TAXATION II

Federal income tax theory and practice applied to the determination of tax liability of corporations, partnerships, estates, trusts, and gifts.

98. INDEPENDENT STUDY

99. UNDERGRADUATE RESEARCH PAPER

SCHOOL OF BUSINESS
DEPARTMENT OF ADMINISTRATION

Joseph M. Trickett, Ph.D., *Chairman*

Professor: Joseph M. Trickett
Visiting Professors: McKee Fisk, Arthur Highman
Associate Professor: Warner O. Brandenburg
Visiting Associate Professor: James F. Boulden
Assistant Professor: Joel K. Leidecker
Lecturers: Mylen E. Fitzwater, Robert F. Jacobs, Joseph P. Kelly

equired: 160, 162 plus any three to be selected from 158, 166, 168 and 171, and Sociology 147.

11. BUSINESS AND SOCIETY

The American business system in theory and practice; political, social, and economic forces shaping the environment of the business organization.

18. BUSINESS LAW

The nature and purpose of law, with emphasis on contracts, agency and sale negotiable instruments, bailments and carriers, and property.

20. BUSINESS LAW

A continuation of 18, with emphasis on partnerships, corporations, bankruptc real estate, insurance and suretyship.

158. GOVERNMENT AND BUSINESS

A study of federal and state economic powers and how they have been used t promote and regulate business activity.

160. ORGANIZATION AND MANAGEMENT

The nature and meaning of management work, the major areas of managemer operation, concepts of organization and their applications, departmental an interdepartmental organization and relationships.

162. BUSINESS POLICIES AND MANAGEMENT

A study of the interrelationship and coordination of prior functional and mar agerial courses leading to the formulation and administration of policy. Com prehensive cases comprise the basic material. Prerequisite: Senior standing.

164. MATERIALS MANAGEMENT

An integrated study of the material flow within an industrial firm, including th interaction of material flow with "order" and information flows.

166. PERSONNEL ADMINISTRATION

An intensive review of the role and functions of the personnel department i business organizations, with particular emphasis on wage payment and incentiv plans and union-management relations.

168. ADMINISTRATIVE PRACTICES

The application of principles which are pertinent to the effective utilization c human resources within the business organization.

171. INDUSTRIAL PSYCHOLOGY

An analysis of the psychological fundamentals affecting individual and grou behavior in organizational situations.

198. INDEPENDENT STUDY

199. UNDERGRADUATE RESEARCH PAPER

SCHOOL OF BUSINESS
DEPARTMENT OF ECONOMICS

Mario L. Belotti, Ph.D., *Chairman*

Professor: Mario L. Belotti
Visiting Professors: Elmer D. Fagan, Edward Haley
Associate Professor: Thaddeus J. Whalen, Jr.
Assistant Professors: Richard T. Coz, S. J.; Henry G. Demmert, William F. Donnelly, John Heineke, Gerald T. O'Mara
Acting Assistant Professor: Michael K. Block

equired: Economics 114, 110, 115 plus a minimum of four other courses in Economics.

r course offerings, see College of Sciences, Department of Economics.

SCHOOL OF BUSINESS
DEPARTMENT OF FINANCE

D. Robert Papera, Ph.D., *Chairman*

Professors: Francis J. Corrigan, D. Robert Papera
Associate Professor: Pretorius Van Den Dool
Acting Assistant Professor: Grover J. Daly
Lecturer: Joseph F. X. Monasta

equired: 121 (core); 125 (recommended); plus four electives from the following: 124, 125, 126, 129, 148, 150, Economics 119, Economics 120.

21. FINANCIAL MANAGEMENT

Primary emphasis on financial analysis, decisions, and policies related to the management of working capital and the sources of short-term financing.

24. INVESTMENTS AND INVESTMENT INSTITUTIONS

Nature of investment institutions and the development of their investment programs in practice and theory.

25. FINANCIAL POLICY

Emphasis placed on financial analysis and theory pertinent to financial structure, capital structure, dividend policy, cost of capital, capital budgeting, and investment policy and valuation.

26. DYNAMICS OF THE FINANCIAL SYSTEM

Role and function of financial institutions, financial flows, interest rate structures, money, and capital markets. The implications for the formulation of business financial policy will be highlighted.

129. SENIOR FINANCE SEMINAR

Students study and discuss selected topics in financial management, theo and research. The selected topics will be partially determined by interests f the seminar members. Emphasis is placed on discussion of a paper and in vidual reading.

148. PRINCIPLES OF INSURANCE

A survey course to acquaint the student with the general principles of insuran and their application to the various branches of the field.

150. LIFE INSURANCE

Studies of the theoretical concepts of the business and personal uses of l insurance and annuities.

198. INDEPENDENT STUDY

199. UNDERGRADUATE RESEARCH PAPER

SCHOOL OF BUSINESS
DEPARTMENT OF MARKETING

Ronald Stucky, Ph.D., *Chairman*

Professors: Paul L. Brown, Charles J. Dirksen, Ronald L. Stucky
Lecturer: Anthony Malo

Required: 181 (core), 182; plus any three of the following: 148, 165, 183, 184, 185, 18 Economics 180.

165. RETAILING

A study of trends in retailing, and of the forces of competition which constant introduce dynamic change into retailing. Prerequisite: 181.

167. PURCHASING

The problems of procuring and coordinating a flow of raw materials, parts, ar supplies with the needs of production and operation of industrial and cor mercial organizations. Prerequisite: 181.

181. PRINCIPLES OF MARKETING

An exploration of the nature of marketing, the analysis of marketing institution and the relationship between demand and marketing.

182. PRINCIPLES OF MARKETING

A continuation of 181. A study of pricing policies and public regulation marketing.

3. **MARKETING AGRICULTURAL PRODUCTS**

A study of the types of agricultural products and their markets; middlemen and their services; price-determining factors; governmental agencies; cooperative marketing.

4. **ADVERTISING**

An analysis of the marketing psychological and social aspects of advertising. Prerequisite: 181.

5. **SALES MANAGEMENT**

An exploration of the systematic management of marketing activities, including the coordination of production and sales, product planning, and the administration of sales forces. Prerequisite: 181.

9. **MARKETING RESEARCH**

A study of the application of marketing research methodology to the solution of business problems and of the survey method as used in marketing research. Prerequisites: 181, 182 and Senior standing.

8. **INDEPENDENT STUDY**

9. **UNDERGRADUATE RESEARCH PAPER**

SCHOOL OF BUSINESS

DEPARTMENT OF QUANTITATIVE METHODS

Zybnek L. Vancura, Drs. (Econ.), *Acting Chairman*

Professor: Harry P. Hartkemeier
Associate Professors: Chaiho Kim, Zbynek, L. Vancura
Assistant Professors: B. Ballard Cheatham, Stanley Fromovitz

equired: 100 (core); plus any four of the following: 101, 102, 103; Economics 111, 112. Mathematics 21, 53.

3. **INTRODUCTORY MATHEMATICS**

College algebra and trigonometry.

4. **MATHEMATICAL CONCEPTS I**

Analytical geometry and calculus.

5. **MATHEMATICAL CONCEPTS II**

Continuation of 14.

16. MATHEMATICAL CONCEPTS III

Finite mathematics.

40. STATISTICS

Basic concepts and methods of statistics, including probability, descripti statistics, significance tests, estimation, sampling and correlation.

100. QUANTITATIVE METHODS I

An introduction to the application of mathematical models and techniques problems of business and operations management. Prerequisite: 40 or equiv lent.

101. QUANTITATIVE METHODS II

The principles of statistical inference, including statistical estimation, si nificance tests, correlation and regression, and analysis of variance. Prerequisit 40 or equivalent.

102. QUANTITATIVE METHODS III

Operations research models used in the solution of business and econom problems. Prerequisite: 100 or equivalent.

103. QUANTITATIVE METHODS IV

Further discussion of models of operations research and management scienc Prerequisite: 102.

SCHOOL OF ENGINEERING

Robert Parden, Ph.D., *Dean*

DEGREES

The undergraduate programs lead to Bachelor of Science degrees in Civil, Electri-al and Mechanical Engineering and a more general program for the Bachelor of cience in Engineering degree. At the Master of Science level, degrees may be earned Civil, Electrical and Mechanical Engineering, Engineering Mechanics, Applied athematics and Engineering.

The Engineer's degree, which represents a year of study beyond the Master's egree, may be earned in Electrical or Mechanical Engineering. The Doctor of Phi-osophy degree is granted in Electrical Engineering.

ALLIED OCCUPATIONS

To be able to narrow one's interest in a career to a specific program, such as ngineering, it is necessary to recognize other kinds of assignments whose preparation llows different formal avenues from that of Engineering. For example:

The Scientist is interested in basic relationships and has an intense curiosity bout nature. His discoveries are the raw material for the engineer's applications. A areer in science normally is associated with the work of a physicist, the chemist, the iologist, and other assignments in basic science. The preparation for these careers iffers from that of the engineer.

The Mathematician is concerned primarily with mathematics as precise description nd with construction of mathematical models of physical situations. His contribution engineering is interpretation, prediction, and application of generalized expressions specific situations. Here, again, the work of the mathematician and the engineer verlap considerably. Many kinds of engineering assignments require a considerable phistication in mathematics. It is in the concern for applications that the attitude of e engineer and the mathematician differ. The mathematician may often be more terested in mathematics as a science than he is in applications which might utilize athematics.

The Technician is one of the men who works with engineers. His interest is prac-cal, and generally he does not need the same amount or kind of formal education. rimarily his job is to gather data and assemble accumulated experience for applica-on to specific and sometimes, repetitive problems.

The Mechanician or Craftsman is concerned with shaping or forming raw materials to useful forms. He fabricates parts, assembles machines, often installs, tests, and aintains equipment. His preparation normally involves the development of a high egree of manual skill.

ENGINEERING AT SANTA CLARA

The undergraduate programs leading to the Bachelor of Science in Civil, Electrica and Mechanical Engineering were first offered at the University of Santa Clara in 191 They were accredited by The Engineers Council for Professional Development in 193 Since that time, the Bachelor of Science in Engineering, the Master of Science in Civi Electrical, and Mechanical Engineering, in Engineering Mechanics, in Applied Mathe matics, the Master of Science in Engineering, the Engineer's degree in Electrical, Me chanical, and Engineering Mechanics, and the Doctor of Philosophy in Electrical Eng neering programs have been added.

SCHOOL OF ENGINEERING
APPLIED MATHEMATICS PROGRAM

Gerald Markle, Ph.D., *Coordinator*

Professor: Gerald Markle
Lecturers: Charles H. Chicks, Raul J. Conti, Wade H. Foy, Henry D. Friedman, Willian T. Hatley, Charles M. Hogan, Edward R. Meyer, Paul O. Scheibe, Joseph H. Schoderbek Jerome G. Sowul, Ernest A. Unwin

The Applied Mathematics faculty is composed of members of several Universit departments, including Mathematics, Engineering, Chemistry, and Physics. With th exception of the two courses below, most of the Applied Mathematics Program i designed for graduate study. A complete listing of the offerings may be found in th Bulletin of *Graduate Courses and Degrees of the School of Engineering.*

101. DIFFERENTIAL EQUATIONS I (2)

Differential equations in general, first order and simple higher order ordinar differential equations; applications of first order and higher order differentia equations.

102. DIFFERENTIAL EQUATIONS II (2)

Linear differential equations with constant coefficients, applications, systems o differential equations and their applications; linear equations with variabl coefficients, existence and uniqueness of solutions to n-th order equations an systems of equations. Prerequisite: 101.

SCHOOL OF ENGINEERING

CIVIL ENGINEERING AND ENGINEERING MECHANICS

Henry V. Hahne, Ph.D., *Chairman*

Professor: Henry V. Hahne
Associate Professors: A. Morgan Johnson, Harold M. Tapay
Lecturers: Sathyanarayana Hanagud, Wilmot J. Nicholson, Robert E. Smith

Civil Engineering relates to works in connection with transportation, such as high-ays and traffic, railways and canals; to structural works, such as bridges, buildings, ams, piers, and many other structures constructed of wood, steel, or reinforced oncrete; to sanitary works and works which have to do with water, such as the collec-on, purification, and distribution of water for a municipal supply; the collection, treat-ent and disposal of sewage; the drainage of some lands and the irrigation of others.

Engineering, or applied mechanics, is a field of graduate study which encompasses ubject matter fundamental to the analysis and design of engineering systems, includ-g such subjects as dynamics, stress analysis, and mechanical behavior of materials. hile the products of these analyses—structures, machines, system—are more widely nown than the methods of analysis, this area continues to serve well the needs of ose students who are interested in the more analytical aspects of engineering and e aiming toward a career in teaching, research or specialized work in industry such s many phases of aerospace studies.

5. INTRODUCTION TO ENGINEERING

Discussion of significant engineering problems of the present and future. Field trips. Open to all students to familiarize the engineering student with his chosen field and to acquaint the non-engineering student with the engineering profession.

10. SURVEYING

Survey instruments—their use, adjustment, and care. Principles of topographic mapping, linear measurements, leveling, traverses, curves, earthwork, boundary and public surveys. Field practice.

15. STATICS

Concept of force and equilibrium. Force systems in plane and in space. Trusses. Friction. Principle of virtual work and its application.

20. GEOLOGY AND HYDROLOGY

Development and formation of geologic materials. Engineering significance of structure, land form, erosion, deposition. Stream and shoreline processes. Surface and subsurface water. Laboratory. Prerequisite: Sophomore standing.

110. DYNAMICS

Dynamics of a particle and dynamics of rigid bodies. Introduction to theory vibrations, balancing of machinery, and theory of the gyroscope. Prerequisite 15 and Physics 4.

111. STATICS AND DYNAMICS

Fundamental principles of statics. Dynamics of a particle and dynamics of rig bodies. Application to problems in engineering. Prerequisite: Physics 4.

115. MATERIALS ENGINEERING

Origin, manufacture, and processing of materials used in civil engineerin Significant properties of metals, wood, cement, and other engineering material Corrosion and its prevention. Fire resistance.

116. STRENGTH OF MATERIALS

Analysis of stresses and strains in bodies under the action of loads. Mohr circle. The concept of strain energy and its applications. Laboratory. Pr requisite: 15.

118. CONSTRUCTION ENGINEERING I

Licensing. Drawings and specifications. Cost Analysis, estimating and biddin Contracts. Bonds. Financing. Insurance. Labor Legislation. Planning ar scheduling.

121. SOILS ENGINEERING

Origin, development and properties of soils. Classification of soils and applic tions of physics and engineering mechanics to soil as an engineering materi Water in soils. Compaction, stabilization, consolidation and bearing capacit Laboratory. Prerequisites: 20, 116.

130. STRUCTURAL ANALYSIS I

Analysis of stresses in statically determinate structures under stationary load Roof and bridge trusses. Straight and curved beams. Frames. Three-hinge arches. Influence lines for beams. Prerequisite: 116.

131. STRUCTURAL ANALYSIS II

Influence lines for bridge trusses and simple arches. Analysis of deformatio of structures. Introduction to statically indeterminate structures and the analys of building frames using moment-distribution method. Inroduction to plast analysis. Prerequisite: 130.

3. STRUCTURAL STEEL DESIGN

Riveted and welded connections. Tension and compression members. Floor systems and roof trusses. Detailing and shop practice. Industrial buildings. Bridges. Prerequisite: 130.

5. REINFORCED CONCRETE DESIGN

Analysis and design of reinforced concrete structures. Introduction to elementary concepts of plastic theory and the theory of pre-stressed concrete. Concrete mixes and construction methods. Prerequisite: 130.

6. ADVANCED CONCRETE DESIGN

Theory and practice of the design of office, apartment and industrial buildings. Design of highway bridges. Concrete arches. Design of prestressed concrete structures. Prerequisite: 135.

8. ADVANCED SOILS AND FOUNDATIONS

Surveying, mapping, and foundation exploration; slope stability and settlement analysis; spread foundations; piles and caissons; earth-retaining structures; loads on underground conduits; subsurface construction. Prerequisite: 121, 135.

0. WATER RESOURCES ENGINEERING

The interrelation of all facets of water resources: storm drainage and flood control; water supply and distribution; sewage collection treatment and disposal. Importance of water resources in the environment. Concepts of planning facilities as related to the total needs of the community. Prerequisite: Mechanical Engineering 118 or Mechanical Engineering 120.

2. WATER RESOURCES DESIGN

Design of collection and storage facilities; pipe lines and channels; water treatment and sewage treatment plants; water quality control; reclamation and reuse. Prerequisite: 140, 121.

5. TRANSPORTATION ENGINEERING

Transportation as a system to meet the needs of society in movement of people and goods. Interaction between transportation facilities and the community. Engineering aspects of rail, highway, air and water carriers and routes. Modern concepts and technology.

6. URBAN AND REGIONAL PLANNING

Principles of city and regional planning. Land use and zoning. Urban and regional problems and their influence in planning: transportation; air pollution; water pollution; waste disposal; recreation; redevelopment; housing; and esthetics. Prerequisite: Senior standing or permission of instructor.

147. PAVEMENT DESIGN

Geometric and structural design of the highway. Urban street layout and detail Layout and design of airport runways, taxi-ways and airports. Railway track an roadbed. Paving materials. Prerequisite: 121, 145.

148. CONSTRUCTION ENGINEERING II

Construction methods and equipment. Legal aspects of construction. Constru tion site organization. Prerequisite: 133, 135.

SCHOOL OF ENGINEERING

ELECTRICAL ENGINEERING

Shu-Park Chan, Ph.D., *Chairman*

Professor: Shu-Park Chan

Associate Professors: Timothy J. Healy, Henry P. Nettesheim, Jack A. Peterson, Dragoslav D. Siljak, Raymond B. Yarbrough

Lecturers: John D. Bruce, Haus R. Camenzind, Charles H. Dawson, Edward A. Hube Neil Ingles, Harmon W. Johnson, Tuck Hop Lee, Robert N. Linebarger, Ralph Lov Richard D. Smallwood, Irving Stein, Gabor C. Temes, George J. Tahler, Keith I. Thomassen, Noel Page Thompson, Thomas Whitney

Electrical Engineering includes the design, construction, and operation of equi ment for generation, transmission, and utilization of electrical energy. Electrical eng neers are concerned with all phases of the electrical transmission of information suc as radio, television, and telephone. Data processing equipment and computers use by business, industry, and government are included in their major area of interes Much of the equipment used in maintaining our national security is powered an controlled by electric and electronic mechanisms.

3. INTRODUCTION TO COMPUTING

Basic computer functions, Fortran programming. Information processing, number systems and computer logic functions. Simulation and games. Algonthms. Programming for statistics. History of computers and computation. Libraries, medical diagnosis and the humanities and the computer. Artificial intelligence. For non-engineering students. Prerequisite: High school algebra or Mathematics 1.

1. PRINCIPLES OF ELECTRICAL ENGINEERING I

Parameters of electrical components, introduction to circuit theory, principles of electromechanical energy conversion, transient and steady-state behavior of electrical systems. Laboratory. Prerequisites: Physics 4B, Mathematics 21.

2. PRINCIPLES OF ELECTRICAL ENGINEERING II

A continuation of 101 to include the basic principles of energy conversion. Introduction of the basic principles of electronics. Elementary theory of vacuum, gas, and solid state electronic devices. Applications to basic electronic circuits as used in communications and industrial electronic systems. Laboratory.

3. ELECTRICAL INSTRUMENTATION AND CONTROL

Introduction to system theory analysis, determination of models for electromechanical and electronic equipment. Analytical techniques for both open- and closed-loop control systems. For non-Electrical Engineering majors. Laboratory. Prerequisite: 101.

4. FUNDAMENTALS OF ELECTROMAGNETIC FIELDS

Static electric and magnetic fields, dielectric and magnetic materials. Time-varying fields. Transmission line theory. Introduction to antennas and propagation. Prerequisite: 101.

6. ENGINEERING AND THE TECHNOLOGICAL SOCIETY

Engineering as a discipline. The foundation concepts of engineering. The history and development of western technology. The impact on society and the social consequences of engineering and technology. Automation and the computer revolution.

8. MICROWAVE THEORY AND TECHNIQUES

A combined lecture and laboratory course covering generation, propagation, and detection of microwave energy. Experiments on klystrons, impedance measurements, antenna radiation patterns, and the characteristics of passive microwave devices. Laboratory. Prerequisite: 104.

1. NETWORK ANALYSIS

Loop-basis and node-basis network analysis, elementary network topology, Laplace transforms, network functions, poles and zeros. Prerequisite: 101.

112. INTRODUCTION TO NETWORK SYNTHESIS

An introduction to modern synthesis methods, properties of driving-point ar transfer functions. Methods of synthesis of LC, RC and RLC one-port network Approximations. Linear filter theory. Prerequisite: 111.

131. CONTROL SYSTEMS

Detailed considerations of the mathematical theory of linear feedback contr systems. Topics include: transfer functions, relation between time and frequenc domain characteristics; analysis and design, using root locus concepts ar frequency response plots; performance criteria and sensitivity; stability. Lal oratory.

151. ELECTRONICS I

Electron ballistics, emission theory, semiconductor theory. Extension of th study of electronic amplifiers to include wideband and radio frequency ampl fiers, and the principles and applications of feedback. Laboratory. Prerequisite 102, 111.

152. ELECTRONICS II

Continuation of 151 to develop features of high-frequency power amplifier oscillators, modulation systems. Communications systems. Introduction to nor linear electronic circuits. Laboratory. Prerequisie: 151.

161. ELECTROMECHANICAL ENERGY CONVERSION

Introduction to energy conversion equations and applications to transducer rotating amplifiers. Machine dynamics, transfer function realization, and mode ing of physical electromechanical systems. Laboratory. Prerequisite: 102.

171. BIOLOGY FOR ENGINEERS

Selected topics in biology of pertinent interest to engineers. Introduction t cell structure and function, bioenergetics, control of cellular processes, genetic structure and function of the human body. Laboratory.

190. UNDERGRADUATE RESEARCH

Open to Departmental Scholars only.

198. SENIOR THESIS AND SEMINAR

Investigation of an approved electrical engineering problem and preparation suitable thesis covering the investigation. Conferences as required. The semina will be presented by the student during the term, covering suitable topics.

199. INDEPENDENT STUDY

Open to Departmental Scholars only.

SCHOOL OF ENGINEERING
MECHANICAL ENGINEERING

Richard K. Pefley, M.E., *Chairman*

Professors: Richard K. Pefley, Michel A. Saad
Associate Professors: R. Ian Murray, Stein Weissenberger
Visiting Associate Professor: Dah Yu Cheng
Assistant Professor: Eugene J. Fisher
Lecturers: Peter G. Aline, Robert F. Burt, George G. Herzl, Mamoru Inouye, Norman G. Kulgein, Frank E. Talke, Clyde E. Taylor, John R. Viegas, Marcel Vinokur, Roger K. Wedel

A student of engineering studies "what is" so that he might create "that which ; not." Mechanical engineering efforts are devoted to the creation of dynamic ma-hinery ranging from jet aircraft and spacecraft through artificial human organs to the nicro-mechanisms required to manufacture and test integrated circuits. Without uidance and control, energy for motivation, and proper materials, these machines vould be useless, thus energy conversion, material science, fluid flow, and guidance nd control schemes come under the purview of mechanical engineers.

Because of the wealth of creation in engineering systms, it becomes imperative nat engineers have a broad awareness of the possible consequences of their creative chemes. This awareness is being increasingly emphasized within the mechanical engi-eering program.

10. DESIGN I

Fortran programming; principles of orthographic projection and descriptive geometry. Graphic analysis of lines, surface areas and volumes. Methods and solutions for simple design problems are presented.

11. DESIGN II

Influence of material selection and manufacturing processes on engineering design.

15. MATERIAL SCIENCE

Physical basis of the electrical, mechanical, and thermal behavior of solids. Relations between structural and physical properties. Theory of dislocations, vacancies, and other defects and their effect on physical properties. Prerequisites: Physics, Chemistry.

10. MACHINE DESIGN I

Analytical and graphical analysis of linkages, utilizing statics, dynamics, and strength of materials. Machine elements studied will include electromechanical and pneumatic-hydraulic components. Prerequisites: 11 and Civil Engineering 116.

111. MACHINE DESIGN II

Continuation of 110. System analysis and synthesis will be studied, includin control systems. Solutions to design problems will be critically evaluated b employing case studies.

118. THERMOFLUID MECHANICS I-C

Similar to 120, but with applications and laboratory work slanted toward Civ Engineering. Prerequisite: Civil Engineering 110.

119. THERMOFLUID MECHANICS II-C

Similar to 121, but with applications and laboratory work slanted toward Civ Engineering. Prerequisite: 118.

120. THERMOFLUID MECHANICS I

Consideration of thermofluid properties of matter, Newton's laws of motion, an the laws of thermodynamics. Emphasis is placed on the application of thes principles to the analysis of fluid systems. Laboratory work emphasizes di mensional analysis as a guide to experimental studies of fluid flow. Prerequisite Civil Engineering 111.

121. THERMOFLUID MECHANICS II

Continuation of 120. Emphasis is placed on control volume analyses of thermo fluid systems and on the implications of the second law of thermodynamics fo such systems. Laboratory work stresses evaluation of system performance Prerequisite: 120.

122. THERMOFLUID MECHANICS III

Continuation of 121 with emphasis on 2nd law concepts, nonreactive and re active mixtures of substances. Laboratory work includes analysis of moder energy conversion systems.

123. GAS DYNAMICS

Introduction to one-dimensional compressible flow of gases, isentropic flow normal shock waves, frictional flow and adiabatic flow. Prerequisite: 121.

125. THERMODYNAMICS

Thermodynamic potentials and availability concepts. Reactive mixtures wit emphasis on the thermodynamics of combustion and chemical equilibrium Prerequisite: 122.

131. CONTROL SYSTEMS

Detailed consideration of the mathematical theory of linear feedback systems Topics include: transfer functions, relations between time and frequency do

main characteristics; analysis and design, using root locus concepts and frequency response plots; performance criteria and sensitivity; stability. Laboratory.

35. HEAT TRANSFER

Introduction to the concepts of conduction, convection, and radiation heat transfer, and application of these concepts to engineering problems. Prerequisite: 121.

36. PROPULSION SYSTEMS

Common parameters for evaluation of marine, terrestrial, and space propulsion systems. Description and analysis of various types of propulsion systems. Prerequisite: 123.

38. NUCLEAR REACTORS

Introduction to principles underlying nuclear power reactor design. Senior standing required.

40. ADVANCED DYNAMICS

Derivation and solution of equations of motion of linear dynamic systems. Stability, introduction to feedback control systems, vibration and noise. Prequisite: Civil Engineering 111.

42. ADVANCED FLUID MECHANICS I

Mechanics of laminar and turbulent flow. Introduction to potential flow and boundary-layer theory. Application to selected topics in lubrication theory, aerodynamics, and turbomachinery. Prerequisite: 121.

43. ADVANCED FLUID MECHANICS II

Application of fluid mechanics principles to flow in piping networks and manifolds. Transient phenomena, including water hammer. Analysis of systems containing turbomachinery. Prerequisite: 121.

50. PROBLEMS IN TECHNOLOGICAL DEVELOPMENT

Discussion of problems of the developed and the underdeveloped world in terms of resources, environment, population growth, industrialization, and the interaction between culture and technology.

98. THESIS AND SEMINAR

Investigation of an engineering problem and writing of an acceptable thesis. Conferences as required. Prerequisite: Senior standing in Mechanical Engineering.

99. INDIVIDUAL STUDY

By special arrangement with the Chairman of the Department. Credit by arrangement.

ETHNIC STUDIES

Cyril E. Edwards, B.S., *Director*

Ethnic Studies will provide an educational process through which operation methods will be developed for abating the manifest social and human problems o the contemporary American scene. The methodology of the program will range fro objective analysis through the process of intra-encounter. Since ethnic studies wi utilize the experiences of groups who do not enjoy the prerogatives accorded to th dominant population in this country, it will then serve to provide all students with more accurate and relevant picture of themselves and their progenitors than coul otherwise be obtained.

Emphasis will be on the nature of ethnocentric value systems, the role of th individual in maintaining them and their implications for the future. This focus will b sharpened by a study of the ways in which the individual can initiate communica tion, interaction, understanding and coexistence on a positive humanistic level wit ethnic groups other than one's own.

2. RACISM IN AMERICA

The etiology and the dynamics of institutionalized racism in America. Th analysis of the individual's role in the current racial crisis with emphasis o the implications of co-existence between white and non-white citizens i America.

3. MEXICAN-AMERICAN EXPERIENCE

An analysis of the socio-psychological process in America that has resulted i the Chicano. An examination of emergent goals and institutionalized pattern as they affect the individual's contemporary interpersonal relationship.

4. CONTEMPORARY SCENE: VERBALIZATION VS. BEHAVIOR

An exploration of the contemporary mood of ethnic minority peoples, with a analysis of methods for confronting and eliminating, on a personal, individua level, the conscious and overt dichotomy between verbalization and behavio which historically has characterized interaction between members of the m nority and dominant groups.

5. ECONOMIC ROOTS OF OPPRESSION

A systematic analysis of the economic factors underlying the oppression c ethnic minorities, women and other groups in contemporary America. A histori cal perspective will be employed with a focus on the relevance of social clas and exploitation.

6. AMERICAN INDIAN LIBERATION

A critical analysis of the socio-psychological effects of the European conques on the Native American, with a historical survey of Indian resistance and th contemporary liberation movement.

7. BLACK CONTRIBUTIONS TO THE ARTS

An inter-disciplinary study of the arts as they relate to ancient and contemporary African civilization; with an analysis of the role for the contemporary black artist in the western milieu.

MILITARY SCIENCE

Francis X. Leary, *Colonel, Professor of Military Science*

The University maintains a Senior Division unit of the Army Reserve Officers' Training Corps. The course offered consists of a two-year basic and a two-year advanced curriculum. The program is specifically designed to give college men "on-campus" training and experience in the art of organizing, motivating, and leading others. It includes instruction to develop self-discipline, physical stamina, and bearing —qualities that are an important part of leadership and that contribute to success in any kind of career.

Through this voluntary program, the University offers each eligible young man the opportunity to obtain an officer's commission while earning his college degree. By combining regular academic pursuits with a course of military instruction, the ROTC graduate is well equipped to assume roles of leadership and command responsibility as an officer in the U.S. Army. Uniforms and textbooks are furnished by the Government without cost to the student.

Basic Course

The Basic Course normally is taken by the college student in his freshman and sophomore years.

The instruction in the freshman year is known as Military Science I and in the sophomore year as Military Science II. The purpose of this instruction is to introduce the student to basic military subjects: military history; familiarization with basic weapons, equipment and techniques; military organization and functions; and the techniques of leadership and command. All studies—which require on an average of about three hours per week—are conducted "on campus." It is from the men who successfully complete this instruction that the best qualified are selected for the Advanced Course which leads to an officer's commission.

Advanced Course

The college student who wishes to take the Advanced Course, which normally i given in the junior and senior years of college, must apply for it. Only young men wh have demonstrated a positive potential for becoming effective officers are selecte Most of the men who qualify for this training have completed the Basic Course. Studen veterans, however, who have had one or more years of active military service an students who have had the equivalent of Military Science I and II in a military scho may be granted credit for the Basic Course and be selected for the Advanced Course Also, under the Two-Year Program, carefully selected college and junior colleg sophomores who complete special summer training may qualify for enrollment in thi course.

The Advanced Course studies in the junior year are known as Military Science II and in the senior year as Military Science IV.

The six week Advanced Course summer camp normally is held between the junio and senior years but, depending upon circumstances which may vary, it could b scheduled after the senior year or possibly between the sophomore and junior years

Instruction in the Advanced Course includes leadership and the exercise of com mand, military teaching methods, tactics, logistics, administration and military justice Practical leadership and command experience is provided as assigning Advance Course students as cadet officers and non-commissioned officers.

In addition to the textbooks and uniforms which are provided without cost, th student receives $50 per month during the school year and $193.20 per month for th summer camp period. He also receives six cents per mile for travel to and from th summer camp.

ROTC Deferment

Each student who signs the ROTC Deferment Agreement receives a draft classifi cation of 1-D which defers him from call to active duty while he is a student in goo standing at the University and until he receives both his baccalaureate degree and hi reserve commission as a Second Lieutenant. This deferment is cancelled immediatel upon discharge from the ROTC program but remains in effect regardless of changes i regulations covering strictly student deferments (2-S).

Army ROTC Scholarship Program

The Army ROTC scholarship program is designed to offer financial assistance t outstanding young men in the four-year Army ROTC program.

Each scholarship provides a free tuition, textbooks and laboratory fees in additio to a subsistence allowance of $50 per month for the period that the scholarship is i effect. During a six-week summer training period at the end of the junior year, thi pay is increased to $193.20 per month. The scholarships are provided under provision of Public Law 88-647, The ROTC Vitalization Act of 1964.

Scholarships may be awarded for one, two, three or four years. Four year scholar ships are open to all students entering Army ROTC as freshmen, while the othe scholarships are available to those students who have successfully completed one two or three years of ROTC studies.

The scholarship recipient is expected to maintain acceptable standards of academic achievement and personal conduct. He must rank in the upper third of his Army ROTC class and continuously demonstrate leadership potential. The records of scholarship recipients will be reviewed each quarter by the Professor of Military Science to determine the student's eligibility for continued financial assistance.

Students who fail to maintain the desired standards may lose their Army ROTC scholarship.

Recipients of Army ROTC scholarships are required to serve six years in the Army, at least four years of which must be on active duty unless released earlier by the Secretary of the Army. Any of the six year period remaining after release from active duty must be spent in a reserve status.

Detailed information on the scholarship program may be obtained from the office of the Professor of Military Science at the University.

Two-Year ROTC Program

The Department of the Army offers students who enter the University with advanced academic standing the opportunity to receive a commission after two years of on-campus ROTC training. A student can take advantage of this opportunity by attending a basic summer camp after his sophomore year and then completing the Advanced Course, ROTC, in his junior and senior years. The basic summer camp prior to enrollment in the Advanced Course substitutes for the first two years of the normal four-year program. Except for this substitution, the two programs are identical.

A student accepted into this program obligates himself to accept a commission, if offered, and to serve on active duty for a period of two years, followed by four years in a Reserve Component. Prerequisites for enrollment are as follows:

a. Be physically fit and mentally qualified.
b. Be of sound character.
c. Be at least 17 years old. A student must not be more than 28 years old when commissioned.
d. Be recommended by board of officers.
e. Have successfully completed the basic summer camp training in lieu of the basic Military Science curriculum.

The Army ROTC Flight Instruction Program

The Army ROTC Flight Instruction Program is offered to students in the second year of the Advanced Course, usually the senior year of college.

Under this program, the Army will pay for flight training for selected ROTC students who have an aptitude for flying and who meet required qualifications.

The student receives a basic introduction to the principles of flying in small, fixed-wing aircraft. He learns the principles of navigation, map and compass reading, take-offs and landings, and will accrue many hours of solo flying. ROTC flight instruction is given by a civilian flying school, near the college, which has the approval of the Federal Aviation Agency (FAA), the Department of the Army, and the college.

The program is conducted as an extracurricular activity. Instruction is normally completed in four months, but up to nine months is allowed in special cases. Each student receives 35 hours of ground instruction and 36½ hours of instruction in-flight. Three additional hours of instruction may be authorized to meet individual needs. Little additional work is required to qualify for a private pilot's license.

Commissioning in the United States Army Reserve and Regular Army

Students who complete the Advanced Course are eligible for appointment and commission by the President of the United States as officers in the United States Army Reserve. Reserve commissions are tendered in all branches of the Army, except the Medical, Dental, Veterinary, Judge Advocate, and Chaplain Corps. The branch in which a student is commissioned is determined by his preference, leadership potential, academic background, recommendations of the faculty and staff, and needs of the service. A newly commissioned officer will normally attend his branch school upon being ordered to active duty. Current laws and regulations require each Advanced Course student, upon receipt of his commission, to complete a two-year tour of active duty and to serve in a reserve component for a subsequent period of four years. Delays in reporting to active duty may be granted to students if they desire to obtain an advanced degree. A student may be delayed from call to active duty for a period not to exceed four years, provided he is enrolled in a full-time program of instruction leading toward an advanced degree and remains in good academic standing with the institution in which enrolled.

A student who receives his baccalaureate degree and has been designated a "Distinguished Military Graduate" by the President of the University and the Professor of Military Science may, upon application, be commissioned directly in the Regular Army.

10. AMERICAN MILITARY HISTORY

Term course. Four class hours and one drill period per week. Fall and winter terms.

12. UNITED STATES DEFENSE ESTABLISHMENT

Sustaining course. Two class hours and one drill period per week. Fall and winter terms.

13. ELEMENTARY MAP READING AND COMMUNICATIONS SYSTEMS

Elective term course. Two class hours and one drill period per week. Spring term. Prerequisites: 10 and 12.

21. ADVANCED MAP READING AND AERIAL PHOTOGRAPHY

Sustaining term course. One class hour and one drill period per week. Fall term.

22. ADVANCED MAP READING AND AERIAL PHOTOGRAPHY

Sustaining term course. One class hour and one drill period per week. Winter term. Prerequisite: 21.

23. INDIVIDUAL WEAPONS AND MARKSMANSHIP

Elective term course. Two class hours and one drill period per week. Spring term. Prerequisites: 21 and 22.

Advanced Courses

111. PRINCIPLES OF LEADERSHIP

Sustaining course. Two class hours and one drill period per week.

112. MILITARY TEACHING METHODS

Sustaining course. Two class hours and one drill period per week. Prerequisite: 111.

113. SMALL UNIT TACTICS AND COMMUNICATIONS

Sustaining course. Two class hours and one drill period per week. Prerequisites: 111 and 112.

121. OPERATIONS AND LOGISTICS

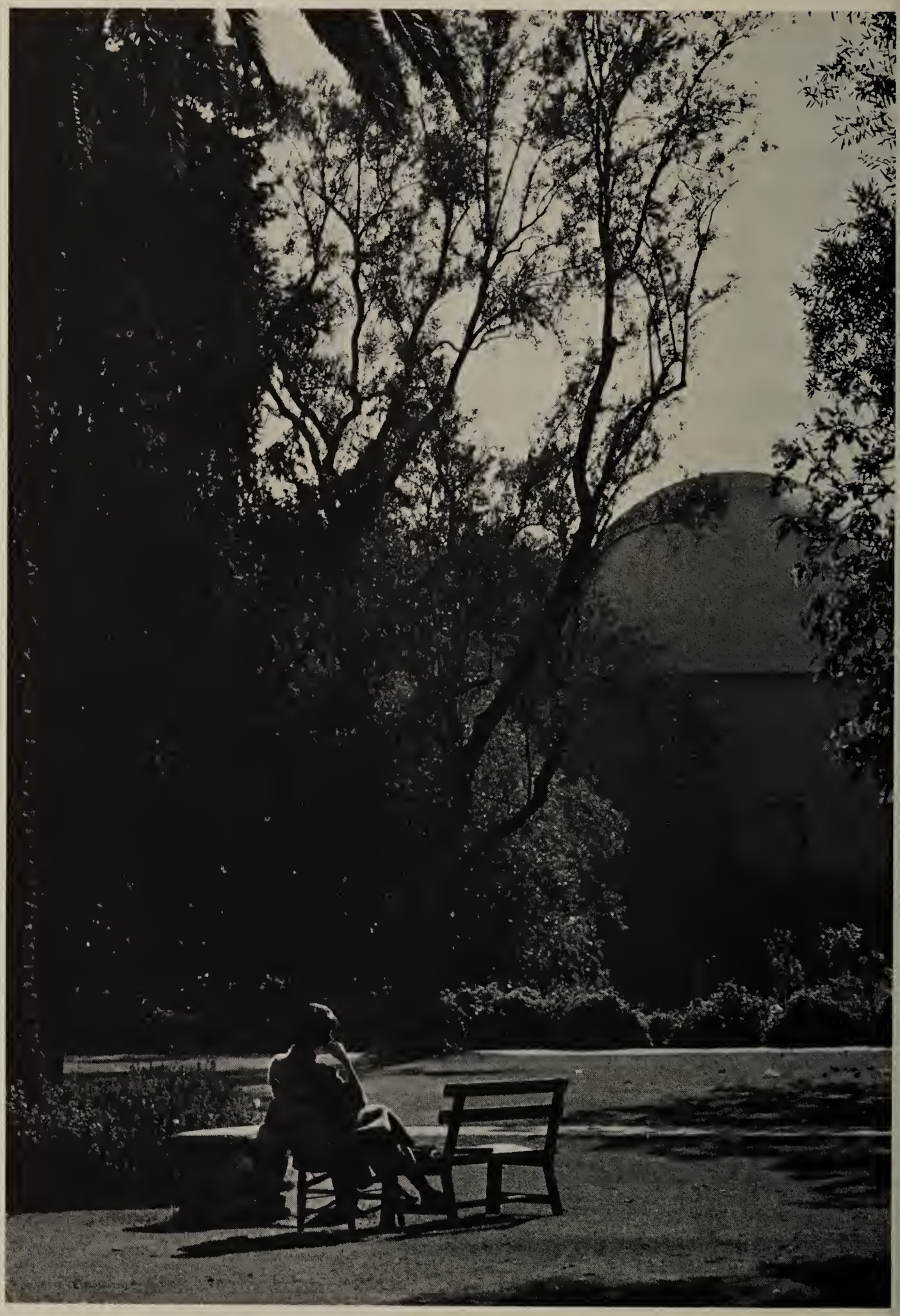
Sustaining course. Two class hours and one drill period per week.

122. LOGISTICS

Sustaining course. Two class hours and one drill period per week.

123. LEADERSHIP AND MANAGEMENT

Term course. Four class hours and one drill period per week. One lower division term course (10) and one upper division term course (123) will be credited against the number of term courses required for graduation. However, all courses must be taken to satisfy the requirements for an officer's commission in the U.S. Army.



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Adolfo McGovert, B.A. ..... *Assistant to the Dean of Students for Special Programs*
Cecil Reeves, B.A. ..... *Assistant to the Dean of Students for Special Programs*
K. Michael Schmidt, Ph.D. ..... *Director of Counseling Center*

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Richard J. Morrisey, B.S. ..... *Executive Director, Alumni Association*
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George P. Malley, B.S. ..... *Director of Athletics*
Garland White ..... *Director of Placement*
John H. Hosemann ..... *Director, Data Processing*

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Oakland, California

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Phoenix, Arizona

Jack Wilde
Sunnyvale, California

FACULTY

JAMES ALBERTSON, S.J. (1968)
Professor of Physics; Academic Vice President
A.B., 1952, M.A., 1953, Saint Louis University; Ph.D., 1958, Harvard University.

GERALD L. ALEXANDERSON (1958)
Associate Professor of Mathematics; Chairman, Department of Mathematics
B.A., 1955, University of Oregon; M.S., 1958, Stanford University.

PETER J. ALINE (1963)
Lecturer in Mechanical Engineering
B.S., 1951, Reed College; M.S., 1953, Ph.D., 1957, University of Oregon.

NORMAN L. AMY (1963)
Lecturer in Business Administration
B.A., University of Denver; A.M., Ph.D., University of Texas.

O. ROBERT ANDERSON (1942)
Professor of Business Administration (Emeritus)
B.A., University of Washington; C.P.A., State of Oregon; M.B.A., University of Washington.

JOSEPH ANNINO (1969)
Assistant Professor of Fine Arts
B.F.A., 1960, Texas Christian University; M.A., 1967, University of Miami.

SISTER M. MONICA ASMAN, O.S.F. (1966)
Lecturer in Biology
B.S., 1956, Loyola University of Los Angeles; M.A., 1960, Ph.D., 1966, University o
Notre Dame.

ERNESTO G. AUERBACH (1965)
Instructor in Modern Languages and German
B.A., 1962, M.A., 1965, University of California, Berkeley.

.OUIS I. BANNAN, S.J. (1953)
Associate Professor of Education
B.A., 1937, M.A., 1938, Gonzaga University; S.T.L., 1944, Alma College.

VILLIAM A. BARKER, II (1964)
Professor of Physics; Chairman, Department of Physics
B.A., 1941, Yale University; M.A., 1948, California Institute of Technology; Ph.D., 1952, St. Louis University.

EDWIN A. BEILHARZ (1936)
Professor of History
A.B., 1931, Creighton University; A.M., 1934, University of Nebraska; Ph.D., 1951, University of California, Berkeley.

MARIO L. BELOTTI (1959)
Professor of Economics and Business Administration; Chairman, Department of Economics
B.A., 1954, A.M., 1955, Midwestern University; Ph.D., 1960, University of Texas.

MAURICE M. BELVAL, S.J. (1965)
Assistant Professor of Modern Languages
B.A., 1938, Loyola University of Los Angeles; M.A., 1944, Gonzaga University; *Doctorat d'Universite*, 1965, University of Paris (Sorbonne).

RICHARD L. BERG (1968)
Assistant Professor of Anthropology
B.E.E., 1957, University of Florida; A.B., 1962, California State College, Long Beach; M.A., 1965, Ph.D., 1969, University of California, Los Angeles.

RAYMOND L. BIONDI (1965)
Associate Professor of Modern Languages
A.B., 1940, A.M., 1942, Ph.D., 1955, Stanford University.

KENNETH E. BLAKER (1965)
Associate Professor of Education; Chairman, Department of Education
B.A., 1958, M.Ed., 1960, University of Arizona; Ph.D., 1965, Southern Illinois University.

MICHAEL K. BLOCK (1969)
Acting Assistant Professor of Economics and Business Administration
A.B., M.A., Stanford University.

MARLYNN K. BOHMAN (1969)
Acting Assistant Professor of Business Administration
B.S., University of Utah; M.B.A., University of California; C.P.A., State of California

LOUIS F. BOITANO (1947)
Lecturer in Business Administration
B.S.C., University of Santa Clara; C.P.A., State of California.

JAMES F. BOULDEN (1961)
Visiting Associate Professor of Management
B.S., University of Illinois; B.B.A., Baylor University; M.S., D.B.A., Indiana University

WARNER O. BRANDENBURG (1967)
Associate Professor of Business Administration
B.S.C., Northwestern University; M.S., Ph.D., University of Illinois.

HERIBERT BREIDENBACH (1969)
Assistant Professor of Modern Languages and German
Ph.B., 1960, Ordenshochschule St. Augustin (Germany); M.A., 1965, Northwestern University; Ph.D., 1970, University of Illinois, Urbana.

PAUL L. BROWN (1965)
Professor of Business Administration
B.S., University of Illinois; M.S., Oklahoma State University; Ph.D., Ohio State University.

JOHN D. BRUCE (1962)
Lecturer in Electrical Engineering
B.S., 1957, M.S., 1960, Ph.D., 1962, University of Kansas.

OBERT E. BUCKENMEYER (1966)
Assistant Professor of Philosophy
A.B., 1955, Gonzaga University; M.A., 1964, Ph.D., 1967, University of Southern California.

ICHAEL BUCKLEY, JR. (1955)
Assistant Professor of Mathematics (Emeritus)
B.S., 1923, United States Military Academy; M.S.E.E., 1933, Purdue University.

OSEPH C. BURGESS (1969)
Acting Assistant Professor of Philosophy
B.A., 1964, University of Akron; M.A., 1967, State University of New York, Buffalo.

OBERT F. BURT (1962)
Lecturer in Mechanical Engineering
B.S., 1940, Brooklyn College; M.A., 1948, Teachers' College, Columbia University; M.S., 1955, New York University.

AUS R. CAMENZIND (1968)
Lecturer in Electrical Engineering
B.S.E.E., 1959, Institute of Technology, Zurich, Switzerland; M.S.E.E., 1967, Northeastern University.

HU-PARK CHAN (1962)
Professor of Electrical Engineering; Chairman, Department of Electrical Engineering
B.S., 1955, Virginia Military Institute; M.S., 1957, Ph.D., 1963, University of Illinois.

. BALLARD CHEATHAM (1964)
Assistant Professor of Business Administration
B.S., United States Naval Academy; M.A., Stanford University.

AH YU CHENG (1969)
Visiting Associate Professor of Mechanical Engineering
B.S., 1957, Cheng Kung University; M.S., 1961, Ph.D., 1965, University of Minnesota.

CHARLES H. CHICKS (1964)
Lecturer in Applied Mathematics
B.S., 1953, Linfield College; M.A., 1956, Ph.D., 1960, University of Oregon.

RAUL J. CONTI (1966)
Lecturer in Applied Mathematics
B.S., 1950, Escuela de Aviacion Militar, Argentina; Aero. Eng., 1953, Escuela Superic de Aerotecnica; Ph.D., 1965, Stanford University.

MARSHALL J. COOK (1968)
Instructor in English
A.B., 1966, M.A., 1967, Stanford University.

RAYMOND F. COPELAND, S.J. (1959)
Professor of Speech and Theology (Emeritus)
A.B., A.M., 1927, Gonzaga University; S.T.L., 1935, Alma College; Ph.D., 1950, St. Louis University.

FRANCIS J. CORRIGAN (1967)
Professor of Business Administration
B.S.C., Saint Louis University; M.B.A., Stanford University; Ph.D., Saint Louis University.

RICHARD T. COZ, S.J. (1963)
Assistant Professor of Economics
A.B., 1953, M.A., 1954, Gonzaga University.

GROVER J. DALY (1969)
Acting Assistant Professor of Business Administration
A.B., University of Chicago; M.B.A., University of Santa Clara.

CHARLES H. DAWSON (1961)
Lecturer in Electrical Engineering
B.S., 1938, Cornell University; M.S., 1941, University of Rochester; Ph.D., 1952, low State University; Registered Professional Engineer.

:AREL L. DE BOUVERE, S.C.J. (1965)
Professor of Mathematics
Nat. Phil. Cand., 1948, Math. et Phys. Drs., 1953, Dr. Math. et Phys. Sc., 1959, University of Amsterdam, The Netherlands.

OSEPH F. DECK (1936)
Professor of Chemistry; Chairman, Department of Chemistry
A.B., 1928, M.A., 1930, Saint Louis University; Ph.D., 1932, University of Kansas.

:ORNELIUS F. DEENEY, S.J. (1921)
Professor of Theology (Emeritus)
A.B., 1904, A.M., 1905, Gonzaga University; Ph.D., 1923, The Pontifical Gregorian University.

AMES P. DEGNAN (1963)
Associate Professor of English
B.A., 1954, Memphis State University; M.A., 1956, University of Notre Dame.

GUSTIN A. DE LA GUARDIA (1964)
Assistant Professor of Modern Languages
B.S.C., 1963, University of Santa Clara; M.Ed., 1964, M.A., 1966, Ph.D., 1970, Stanford University.

LICE DE LISLE
Lecturer in Fine Arts
B.A., 1965, M.A., 1967, San Jose State College.

ENRY G. DEMMERT (1968)
Assistant Professor of Economics and Business Administration
B.A., 1965, University of Santa Clara.

AYMOND L. DENNEHY (1966)
Assistant Professor of Philosophy
A.B., 1962, University of San Francisco.

CHARLES J. DIRKSEN (1938)
Professor of Business Administration; Dean, Schools of Business
B.S.C., M.S.C., Saint Louis University; LL.D., University of Santa Clara.

WILLIAM F. DONNELLY, S.J. (1969)
Assistant Professor of Economics and Business Administration
B.S.C., M.S.T., University of Santa Clara; M.A., Gonzaga University; Ph.D., New Yor
University.

JOHN B. DRAHMANN (1954)
Professor of Physics; Dean, College of Sciences
B.S., 1943, St. John's University (Minnesota); Ph.D., 1952, St. Louis University.

WILLIAM T. DUFFY, JR. (1959)
Professor of Physics
B.E.E., 1953, University of Santa Clara; M.S., 1954, Ph.D., 1959, Stanford Universit

DANIEL O. DUGAN (1966)
Acting Assistant Professor of Religious Studies
A.B., 1964, Gonzaga University; M.A., 1966, Marquette University.

FRANCIS X. DUGGAN (1962)
Professor of English
A.B., 1948, University of Notre Dame; M.A., 1950, Ph.D., 1960, University of Pennsylvania.

JOHN F. DULLEA, S.J. (1968)
Assistant Professor of Religious Studies
M.A., 1952, Gonzaga University; S.T.L., 1960, University of Innsbruck; S.T.D., 197
The Pontifical Gregorian University.

WILLIAM R. DUNN, JR. (1969)
Assistant Professor of Electrical Engineering
A.B., 1958, University of California, Berkeley; M.S.E.E., 1968, Ph.D., 1970, University of Santa Clara.

YRIL E. EDWARDS (1969)
Director of Ethnic Studies
B.S., 1962, Arizona State University.

EORGE W. EVANS II (1966)
Associate Professor of Mathematics
B.A., 1942, M.A., 1943, University of California, Berkeley; Ph.D., 1951, New York University.

LMER D. FAGAN (1962)
Visiting Professor of Economics and Business Administration
A.B., 1920, University of Oklahoma; M.A., 1921, Ph.D., 1926, Harvard University.

USTIN J. FAGOTHEY, S.J. (1938)
Professor of Philosophy
A.B., 1923, A.M., 1924, Gonzaga University; S.T.L., 1932, Weston College; Ph.D., 1949, The Pontifical Gregorian University.

IMOTHY FALLON, S.J. (1965)
Assistant Professor of Philosophy
A.B., 1946, M.A., 1947, Gonzaga University; S.T.L., 1953, Alma College; Ph.D., 1967, University of Toronto.

HOMAS N. FAST (1957)
Associate Professor of Biology
B.S., 1949, University of Santa Clara; Ph.D., 1960, Stanford University.

OBERT FEINBAUM (1967)
Assistant Professor of Sociology
B.Sc., 1960, Massachusetts Institute of Technology; M.A., 1963, Ph.D., 1967, University of California, Berkeley.

AMES W. FELT, S.J. (1965)
Associate Professor of Philosophy
B.A., 1949, M.A., 1950, Gonzaga University; S.T.L., 1957, Alma College; M.S., 1961, Ph.D., 1965, Saint Louis University

EUGENE J. FISHER (1954)

Associate Professor of Mechanical Engineering

B.M.E., 1950, University of Santa Clara; M.S., 1965, Stanford University; Registered Professional Engineer.

MCKEE FISK (1969)

Visiting Professor of Business Administration

A.B., Oklahoma City University; A.M., University of Southern California; Ph.D., Yale University.

MYLEN E. FITZWATER (1968)

Lecturer in Business Administration

B.Sc.E., M.A., Ph.D., Ohio State University.

FRANCIS R. FLAIM (1938)

Professor of Biology

A.B., 1936, M.A., 1938, University of Utah; Ph.D., 1956, Stanford University.

EDWARD T. FLOOD (1966)

Associate Professor of History

A.B., 1958, Seattle University; Ph.D., 1967, University of Washington.

EDMUND C. FLYNN

Professor of Engineering (Emeritus)

B.S., 1919, Colorado College; M.S., 1925, Iowa State University.

WADE H. FOY (1964)

Lecturer in Applied Mathematics

B.S., 1946, United States Naval Academy; B.E.E., 1951, North Carolina State University; M.S.E.E., 1955, Massachusetts Institute of Technology; Ph.D., 1962, The Johns Hopkins University.

GEOFFREY FOX (1969)

Assistant Professor of Physics

B.S., 1962, University of Santa Clara; Ph.D., 1967, University of Wisconsin.

ARCIA M. FREDERICK (1967)
Assistant Professor of Speech and Theatre Arts
A.B., 1965, M.A., 1967, California State College, Long Beach.

ENRY D. FRIEDMAN (1967)
Lecturer in Applied Mathematics
B.S., 1948, Pennsylvania State University; M.S., 1950, Columbia University; Ph.D., 1953, Pennsylvania State University.

TANLEY FROMOVITZ (1968)
Assistant Professor of Business Administration
B.A., M.A., University of Toronto; Ph.D., Stanford University.

AMES A. FULTON (1969)
Assistant Professor of Education
B.S., 1962, M.S., 1965, Ph.D., 1969, Southern Illinois University.

TEVEN M. GELBER (1969)
Acting Assistant Professor of History
B.S., 1965, Cornell University; M.S., 1967, University of Wisconsin.

EORGE F. GIACOMINI, JR. (1962)
Assistant Professor of History
B.A., 1956, University of Santa Clara; M.A., 1957, University of California, Berkeley.

OBERT GIGUERE, S.S. (1969)
Assistant Professor of Religious Studies
A.B., 1939, Holy Cross College; M.A., 1940, Boston University; Ph.L., 1943, Ph.D., 1950, Catholic University.

ATHLEEN MARY GLENN (1969)
Assistant Professor of Modern Languages
A.B., 1957, A.M., 1961, Ph.D., 1970, Stanford University.

WENDELL J. GOESLING (1969)
Assistant Professor of Psychology
B.A., 1965, Fresno State College; Ph.D., 1969, University of Tennessee.

JOHN H. GRAY, S.J. (1961)
Associate Professor of English; Dean, College of Humanities
A.B., 1948, Gonzaga University; A.M., 1952, Loyola University, Los Angeles; S.T.L. 1956, St. Albert's College, Louvain; Ph.D., 1961, University of London.

ALAN B. GREBENE (1969)
Lecturer in Electrical Engineering
B.S.E.E., 1961, Roberts College; M.S.E.E., 1963, University of California, Berkeley Ph.D., 1968, Rensselaer Polytechnic Institute.

FRANK GREENE (1969)
Lecturer in Electrical Engineering
B.S., 1961, Washington University; M.S., 1962, Purdue University; Ph.D., 1970, University of Santa Clara.

EDWARD D. GROSS (1964)
Assistant Professor of English
A.B., 1947, M.A., 1951, Ph.D., 1964, University of Pennsylvania.

PRADEEP GUPTA (1969)
Lecturer in Electrical Engineering
B.S.E.E., 1964, Indian Institute of Technology, Madras; M.S.E.E., 1966, Ph.D., 1969 Purdue University.

RAMSDELL GURNEY (1968)
Assistant Professor of History
B.A., 1956, Williams College; M.A., 1961, Ph.D., 1968, State University of New York Buffalo.

HENRY V. HAHNE (1959)
Professor of Civil Engineering; Chairman, Department of Civil Engineering
Dipl. Ing., 1949, Technische Hochschule; Ph.D., 1954, Stanford University.

ERNARD HALEY (1968)
Visiting Professor of Economics and Business Administration
A.B., M.A., Stanford University; M.A., Ph.D., Harvard University.

RUCE D. HAMLETT (1968)
Assistant Professor of Political Science
B.A., 1964, Miami University; Ph.D., 1969, Claremont Graduate School.

ATHYANARAYANA HANAGUD (1964)
Lecturer in Civil Engineering
B.E., 1953, College of Engineering, Bangalore, India; D.I.I.Sc., 1955, Indian Institute of Science; Ph.D., 1963, Stanford University.

AUL V. HARRELL (1963)
Assistant Professor of Business Administration
B.A., University of California at Los Angeles; M.Acc., University of Southern California; C.P.A., State of California.

ARRY P. HARTKEMEIER (1960)
Professor of Business Administration
B.A., University of Louisville; A.M., Harvard University; Ph.D., University of Chicago.

ILLIAM T. HATLEY, JR. (1969)
Lecturer in Applied Mathematics
B.A., 1960, Rice University; M.S.E.E., 1964, Ph.D., 1968, Stanford University.

ARL H. HAYN, S.J. (1955)
Associate Professor of Physics
A.B., 1939, A.M., 1940, Gonzaga University; S.T.L., 1948, Alma College; Ph.D., 1955, St. Louis University.

MOTHY J. HEALY (1966)
Associate Professor of Electrical Engineering and Applied Mathematics
B.S.E.E., 1958, Seattle University; M.S.E.E., 1959, Stanford University; Ph.D., 1966, University of Colorado.

JOHN HEINEKE (1968)
Assistant Professor of Economics and Business Administration
B.A., 1961, St. Ambrose College; Ph.D., 1968, University of Iowa.

GEORGE G. HERZL (1963)
Lecturer in Mechanical Engineering
B.A., 1949, University of Zagreb, Yugoslavia; M.E., 1952, Israel Institute of Tecl nology; M.S., 1958, Stanford University; Ph.D., 1962, Technical University, Darmstac Germany.

ARTHUR HIGHMAN (1968)
Professional Lecturer in Business Administration
B.S., Illinois Institute of Technology; M.S., Ph.D., University of Chicago.

HELENE J. HOBSON (1964)
Assistant Professor of Modern Languages
A.B., 1926, Academy of Paris; 1929, *Licence en Droit-Montpelier.*

CHARLES M. HOGAN (1969)
Lecturer in Applied Mathematics
B.A., 1964, Princeton University; M.S., 1966, Ph.D., 1969, Stanford University.

LEO J. HOMBACH, S.J. (1966)
Assistant Professor of Biology; Chairman, Department of Biology
A.B., 1955, Spring Hill College, Alabama; S.T.L., 1962, University of Santa Clar M.S., 1965, Fordham University.

WILLIAM C. HORNE (1970)
Assistant Professor of Psychology
B.A., 1961, M.A., 1964, Ph.D., 1965, University of Iowa.

EDWARD A. HUBER (1963)
Lecturer in Electrical Engineering
B.S., 1955, Ph.D., 1960, University of Illinois.

IEIL INGLES (1967)
Lecturer in Electrical Engineering
B.S., 1959, University of Arkansas; M.S., 1963, University of Santa Clara; Ph.D., 1967, Stanford University.

IAMORU INOUYE (1962)
Lecturer in Mechanical Engineering
B.M.E., 1952, University of Santa Clara; M.S., 1953, Stanford University.

ICHIRO K. IWAMOTO (1965)
Assistant Professor of Sociology
A.B., 1958, Hunter College of CUNY; M.A., 1963, City College of CUNY; Ph.D., 1970, Purdue University.

OBERT F. JACOBS (1961)
Lecturer in Business Administration
J.D., University of Santa Clara.

ILLIAM F. JAMES (1963)
Associate Professor of Speech and Theatre Arts; Chairman, Department of Speech and Theatre Arts
B.A., 1953, University of Nevada; M.A., 1956, San Jose State College; Ph.D., 1969, University of Iowa.

OY A. JENSEN (1968)
Lecturer in Electrical Engineering
B.S., 1957, M.S., 1958, California Institute of Technology.

. MORGAN JOHNSON (1968)
Professor of Civil Engineering
B.S., 1939, M.S., 1946, Iowa State University; Ph.D., 1949, Purdue University.
Registered Professional Engineer.

ARMON W. JOHNSON (1962)
Lecturer in Electrical Engineering
B.S.E.E., 1960, University of Santa Clara; M.S., 1961, Stanford University.

ELIOT JONES (1952)
Professor of Business Administration (Emeritus)
A.B., Vanderbilt University; A.M., Ph.D., Harvard University.

STEPHEN JURIKA, JR. (1963)
Associate Professor of Political Science; Chairman
B.S., 1933, United States Naval Academy; M.A., 1957, George Washington University
Ph.D., 1962, Stanford University.

CATHERINE G. KARR (1969)
Acting Assistant Professor of Modern Languages
B.A., 1963, Cornell University; M.A., 1965, University of Wisconsin.

ALICE J. KELLY (1966)
Assistant Professor of Mathematics
B.S., 1964, M.S., 1965, University of Oregon.

JOSEPH P. KELLY (1939)
Lecturer in Business Law
Ph.B., Holy Cross College; J.D., LL.M., New York University.

GEORGE V. KENNARD, S.J. (1969)
Acting Assistant Professor of Philosophy
A.B., 1943, M.A., 1949, Saint Louis University; S.T.L., 1951, Alma College.

WILLIAM O. KERR, JR. (1967)
Assistant Professor of Philosophy
A.B., 1959, St. Bonaventure University; M.A., 1961, Ph.D., 1969, State University of
New York, Buffalo.

CHAIHO KIM (1964)
Associate Professor of Business Administration
B.A., Ouchita College; M.S., Ph.D., Columbia University.

. B. KIRSHEN (1967)
Visiting Professor of Business Administration
B.S., Whitman College; M.A., Columbia University; Ph.D., University of Wisconsin.

EONARD F. KLOSINSKI (1964)
Assistant Professor of Mathematics
B.S., 1961, University of Santa Clara; M.A., 1963, Oregon State University.

AUL KOS (1969)
Lecturer in Fine Arts
B.F.A., 1965, M.F.A., 1967, San Francisco Art Institute.

ITOLD KRASSOWSKI (1957)
Professor of Sociology; Director, Division of Social Sciences; Chairman, Department of Sociology
B.Sc., 1952, M.S., 1954, Purdue University; Ph.D., 1963, University of California, Los Angeles.

LLEN P. KRAUSE (1969)
Lecturer in Religious Studies
B.A., 1961, University of California, Los Angeles; B.H.L., 1963, Hebrew Union College, Los Angeles; M.A.H.L., 1967, Hebrew Union College, Cincinnati.

ERNARD L. KRONICK (1956)
Professor of Political Science; Acting Chairman, Department of Political Science
A.B., 1937, Ph.D., 1953, University of California, Berkeley.

ALTER J. KROPP, S.J. (1956)
Associate Professor of Classics
A.B., 1930, A.M., 1931, Gonzaga University; M.A. in Classics, 1946, University of Toronto.

ORMAN G. KULQEIN (1963)
Lecturer in Mechanical Engineering
S.B., 1955, S.M., 1956, Massachusetts Institute of Technology; Ph.D., 1960, Harvard University.

CHARLES P. LAMPKIN (1969)
Artist in Residence in Music
B.S., 1941, Virginia Theological Seminary.

TUCK HOP LEE (1961)
Lecturer in Electrical Engineering
B.S., 1949, University of Iowa; M.S., 1950, Yale University; Ph.D., 1958, Universi of Illinois.

EUGENE W. LEHR (1967)
Assistant Professor of Sociology
B.A., 1962, Harvard University.

JOEL K. LEIDECKER (1969)
Assistant Professor of Business Administration
B.A., M.B.A., D.B.A., University of Washington.

CHRISTIAAN T. LIEVESTRO (1969)
Associate Professor of English
A.B., 1950, State University of New York, Albany; M.A., 1953, Ph.D., 1958, Harva University.

ROBERT N. LINEBARGER (1965)
Lecturer in Electrical Engineering
B.A., 1958, Brigham Young University; M.S., 1960, University of Michigan; Ph.D 1963, Case Western Reserve University.

DAVID E. LOGOTHETTI (1967)
Assistant Professor of Mathematics and Education
A.B., 1957, M.A., 1962, University of California, Los Angeles.

ELEANOR R. LONG (1968)
Assistant Professor of English
B.S., 1957, Portland State University; M.A., 1958, University of Portland; Ph.D., 196 University of California, Los Angeles.

HARLES F. LOUIE (1963)
Associate Professor of Business Administration
B.S., M.B.A., Ph.D., University of California at Berkeley.

ALPH LOVE (1967)
Lecturer in Electrical Engineering
B.S., 1957, Stanford University; M.S., 1962, Ph.D., 1967, University of California, Berkeley.

OLAND C. LOWE (1968)
Assistant Professor of Psychology; Chairman, Department of Psychology
B.A., 1957, University of Massachusetts; M.A., 1960, Ph.D., 1962, Clark University.

ALE R. LUMB (1969)
Lecturer in Electrical Engineering
B.S., 1958, M.S., 1959, Ph.D., 1962, Kansas State University.

EONARD S. LYONS (1969)
Assistant Professor of Philosophy
B.A., 1964, University of Rochester; M.A., 1966, Ph.D., 1969, Brown University.

HEODORE J. MACKIN, S.J. (1958)
Associate Professor of Religious Studies; Chairman, Department of Religious Studies
A.B., 1946, A.M., 1948, Gonzaga University; S.T.L., 1954, Alma College; S.T.D., 1958, The Pontifical Gregorian University.

AY MAGELBY (1969)
Lecturer in Electrical Engineering
B.S.E.E., 1957, University of Utah; M.S.E.E., 1960, Ph.D., 1964, Stanford University.

ATINDER NATH MAHAJAN (1969)
Assistant Professor of Philosophy
B.A., 1960, Government College, Gurdaspur; M.A., 1962, Panjab University, India; Ph.D., 1969, University of Hawaii.

THOMAS MAIER (1967)
Professor of Business Administration
B.S., M.S., D.Ed., Temple University; M.B.A., University of Santa Clara; C.P.A., Sta
of California.

ANTHONY MALO (1965)
Lecturer in Business Administration
B.S.E.E., Stanford University; M.B.A., University of Santa Clara.

PETER B. MANCHESTER (1966)
Acting Assistant Professor of Philosophy and Religious Studies; Acting Chairman, Department of Philosophy
A.B., 1964, University of Santa Clara.

GERALD E. MARKLE (1963)
Professor of Engineering; Director, Instructional Computation
B.S., 1936, M.S., 1938, University of Detroit; M.A., 1940, University of Michigan; Ph.D
1954, Wayne State University.

NORMAN F. MARTIN, S.J. (1958)
Professor of History
A.B., 1941, A.M., 1942, Gonzaga University; S.T.L., 1948, Colegio Maximo de Sa
Miguel, Buenos Aires; A.M., 1950, Mexico City College (University of the Americas
Doctor en Letras, 1957, National University of Mexico.

ROGER D. McAULIFFE, S.J. (1952)
Assistant Professor of Religious Studies
A.M., 1943, Gonzaga University; S.T.L., 1950, Alma College.

CHARLES N. R. McCOY (1963)
Professor of Political Science
A.B., 1932, Dartmouth College; Ph.D., 1938, University of Chicago; Ph.D., 1941, Lava
University (Canada).

PHILIP T. McCORMICK (1958)
Professor of Physics
B.S., 1948, Ph.D., 1954, University of Notre Dame.

ERALD E. McDONALD (1962)
Professor of Education
A.B., 1947, Boston College; Ed.D., 1955, Stanford University.

TUART D. McLEAN (1968)
Assistant Professor of Theology; Director, Center for the Study of Contemporary Values
A.B., 1952, Oberlin College; B.D., 1954, Yale University; M.A., 1962, Ph.D., 1968, University of Chicago.

ATTHIAS S. MEIER (1963)
Associate Professor of History; Chairman, Department of History
B.A., 1948, University of Miami; M.A., 1949, University of the Americas, Mexico City; Ph.D., 1954, University of California, Berkeley.

ILES MERWIN (1970)
Acting Assistant Professor of History
B.A., 1963, Rutgers—The State University; M.A., 1965, University of California, Berkeley;

DWARD R. MEYER (1968)
Lecturer in Applied Mathematics
B.S., 1963, Northwestern University; M.S., 1965, University of Santa Clara.

OBERT H. MEYER (1966)
Assistant Professor of English
A.B., 1960, M.A., 1962, Sacramento State College; Ph.D., 1966, University of California, Davis.

YRA M. MILBURN (1968)
Assistant Professor of Philosophy
B.A., 1958, Pomona College; Ph.D., 1965, The Johns Hopkins University.

ENNETH MILLER (1970)
Instructor in English
A.B., 1929, Ohio Wesleyan University; A.M., 1936, Harvard University.

BRYAN J. MISSELBROOK (1967)
Instructor of English
L.L.B., 1935, London School of Economics; M.A., 1960, San Jose State College.

SANJIT MITRA (1969)
Lecturer in Electrical Engineering
B.S., 1951, Utkal University; M.S., 1956, Calcutta University; M.S., 1960, Ph.D., 1962 University of California, Berkeley.

ISTVAN MOCSY (1970)
Visiting Assistant Professor of History
B.A., 1962, M.A., 1964, University of Arizona.

JOSEPH F. X. MONASTA (1948)
Lecturer in Business Administration
A.B., Anselm College; M.B.A., Stanford University.

JOHN S. MOORING (1963)
Professor of Biology
A.B., 1950, University of California, Santa Barbara; Ph.D., 1956, University of California, Los Angeles.

ELIZABETH J. MORAN (1963)
Assistant Professor of English
A.B., 1942, Indiana University; M.A., 1963, San Jose State College.

ROBERT IAN MURRAY (1951)
Associate Professor of Mechanical Engineering
B.S., 1949, M.S., 1951, Stanford University.

HENRY M. MUSAL, JR. (1969)
Lecturer in Electrical Engineering
B.S., 1954, M.S.E.E., 1957, Ph.D., 1965, Illinois Institute of Technology.

AWRENCE C. NATHAN (1970)
Acting Assistant Professor of Chemistry
B.A., 1966, Linfield College.

. TERENCE NETTER (1969)
Assistant Professor of Fine Arts; Chairman, Department of Fine Arts
A.B., 1953, M.A., 1954, Lic. Phil., 1954, Fordham University; Lic. St., 1961, University of Innsbruck; M.F.A., 1965, The George Washington University.

ENRY P. NETTESHEIM (1947)
Associate Professor of Electrical Engineering
B.S.E.E., 1946, University of Wisconsin; M.S., 1951, Stanford University. Registered Professional Engineer.

OHN J. NEWMAN (1969)
Lecturer in Electrical Engineering
B.S., 1958, Montana State University; M.S.E.E., 1961, University of New Mexico; Ph.D., 1968, University of Santa Clara.

ILMOT J. NICHOLSON (1964)
Lecturer in Civil Engineering
B.S., 1936, University of Santa Clara.

OGER T. NYQUIST (1968)
Assistant Professor of Music; Chairman, Department of Music
B.M., 1957, Augustana College; M.M., 1958, Syracuse University; D.Mus., 1962, Indiana University.

MOTHY J. O'KEEFE (1965)
Assistant Professor of History
A.B., 1961, Saint Mary's College, California; M.A., 1963, Ph.D., 1968, University of Notre Dame.

OUGLAS W. OLCOTT (1970)
Visiting Assistant Professor of Classics
B.A., 1966, Williams College; M.A., 1968, Stanford University.

GERALD T. O'MARA (1968)
Assistant Professor of Economics and Business Administration
B.A., 1950, University of Chicago; M.A., 1968, Stanford University.

WOLODYMYR ORENCZUK (1963)
Lecturer in Russian
LL.M., 1937, State University of King Jan Kasimir, Poland; LL.D., 1949, Free University, Germany; M.A. in L.S., 1956, Rosary College.

FELTON G. O'TOOLE, S.J. (1953)
Assistant Professor of English
A.M., 1941, Gonzaga University; A.M., 1951, Fordham University.

JOHN PAGANI (1954)
Professor of Business Administration; Chairman, Department of Accounting
B.S.C., University of Santa Clara; Ph.D., Stanford University.

D. ROBERT PAPERA (1960)
Professor of Business Administration; Chairman, Department of Finance
A.B., A.M., Ph.D., Stanford University.

ROBERT J. PARDEN (1954)
Professor of Engineering; Dean, School of Engineering
B.S.M.E., 1947, M.S., 1951, Ph.D., 1953, State University of Iowa. Registered Professional Engineer.

JEAN J. PEDERSEN (1965)
Lecturer in Mathematics
B.S., 1955, Brigham Young University; M.S., 1958, University of Utah.

RICHARD K. PEFLEY (1951)
Professor of Mechanical Engineering; Chairman, Department of Mechanical Engineering
B.S., 1944, M.S., 1951, Stanford University. Registered Professional Engineer.

JACK A. PETERSON (1955)
Associate Professor of Electrical Engineering; Director, Continuing Education
B.S.E.E., 1949, M.S.E.E., 1953, University of Idaho. Registered Professional Engineer.

JOHN PETALE-AMATO (1970)
Lecturer in Religious Studies
B.A., 1945, Providence College; M.A., 1969, Fordham University.

ROBERT J. PFEIFFER (1958)
Associate Professor of Chemistry
B.S., 1953, University of Santa Clara; Ph.D., 1958, Cornell University.

CHARLES T. PHIPPS, S. J. (1965)
Associate Professor of English; Director, Honors Program
A.B., 1952, Ph.L., 1953, Gonzaga University; M.S.T., 1960, Alma College; Ph.D., 1965, University of North Carolina.

PETER O. PIERSON (1966)
Assistant Professor of History
A.B., 1954, M.A., 1963, Ph.D., 1966, University of California, Los Angeles.

ROBERT A. RAINES (1968)
Assistant Professor of English
B.A., 1965, University of St. Thomas; M.A., 1966, Ph.D., 1968, University of Delaware.

CHRISTINE RANES (1968)
Lecturer in Fine Arts
Certificate in Design, 1961, Pratt Institute.

ANDREW I. REMATORE (1965)
Associate Professor of Modern Languages
B.A., 1950, M.A., 1952, University of Colorado; Ph.D., 1968, Stanford University.

WILLIAM J. REWAK, S.J. (1970)
Assistant Professor of English
B.A., 1957, M.A., 1958, Gonzaga University; Ph.D., 1970, University of Minnesota.

RICHARD J. ROBERTS, S.J. (1961)
Associate Professor of Political Science
A.B., 1935, University of San Francisco; A.M., 1943, Saint Louis University; S.T.L., 1949, Alma College; Ph.D., 1961, Saint Louis University.

LEO P. ROCK, S.J. (1965)
Assistant Professor of Psychology
Ph.L., 1952, Gonzaga University; S.T.L., 1959, Alma College; Ph.D., 1964, Ottawa University.

MICHEL A. SAAD (1959)
Professor of Mechanical Engineering
B.S., 1949, Alexandria University; M.S., 1953, Massachusetts Institute of Technology; Ph.D., 1956, University of Michigan.

MARK SANFORD (1969)
Acting Assistant Professor of Sociology
B.A., 1963, Stanford University; M.A., 1965, University of California, Berkeley.

PAUL O. SCHEIBE (1962)
Lecturer in Applied Mathematics
B.S., 1958, M.S., 1959, University of North Dakota; Ph.D., 1963, Stanford University.

RICHARD M. SCHMIDT (1941)
Assistant Professor of English
A.B., 1935, University of Santa Clara; M.A., 1945, University of Washington.

JOSEPH H. SCHODERBEK (1965)
Lecturer in Applied Mathematics
B.S., 1949, M.S., 1951, Carnegie-Mellon University; Ph.D., 1964, Stanford University.

MARVIN L. SCHROTH (1966)
Assistant Professor of Psychology
B.A., 1959, University of Redlands; M.S., 1961, Washington State University; Ph.D., 1965, Texas Christian University.

DAVID SCHUMAN (1969)
Instructor in English
A.B., 1966, Stanford University; M.A., 1969, San Francisco State College.

PHILLIP G. SCHUYLER (1967)
Artist in Residence in Fine Arts
Diploma from The Art Student's League, New York, 1950; A.B., 1964, California State College, Los Angeles.

STEPHEN C. SCHULTZ (1970)
Acting Assistant Professor of Speech and Theatre Arts
B.A., 1959, University of Nebraska; M.A., 1965, Stanford University.

K. G. SEELY (1963)
Assistant Professor of Modern Languages
B.A., 1956, M.A., 1957, Brigham Young University; Ph.D., 1966, Columbia University.

PAUL SHAFT (1969)
Lecturer in Electrical Engineering
B.E.E., 1955, M.S., 1961, Rensselaer Polytechnic Institute.

JOHN B. SHANKS, S.J. (1961)
Assistant Professor of Philosophy
A.B., 1947, A.M., 1948, Gonzaga University; S.T.L., 1955, Alma College.

ROBERT F. SHEA (1956)
Assistant Professor of Speech and Theatre Arts
A.B., 1938, Trinity College, Iowa; A.M., 1953, University of South Dakota.

WILLIAM F. SHEEHAN, JR. (1966)
Professor of Chemistry
B.S., 1948, Loyola University, Chicago; Ph.D., 1952, California Institute of Technology.

LYNN R. SHURTLEFF (1966)
Assistant Professor of Music
A.B., 1963, M.A., 1965, Brigham Young University.

DRAGOSLAV D. SILJAK (1964)
Professor of Electrical Engineering
Ph.D., 1961, University of Belgrade.

DAVID SKINNER (1970)
Acting Assistant Professor of History
A.B., 1957, Whittier College; M.A., 1964, Universtiy of California, Berkeley.

RICHARD D. SMALLWOOD (1966)
Lecturer in Electrical Engineering
S.B., 1957, S.M., 1958, Ph.D., 1962, Massachusetts Institute of Technology.

J. MALCOLM SMITH (1968)
Visiting Professor of Political Science
B.S., 1943, United States Naval Academy; Ph.D., 1961, Stanford University.

ROBERT E. SMITH (1962)
Lecturer in Civil Engineering
B.S., 1950, Purdue University; M.S., 1956, Washington University.

EDWARD H. SNOW (1969)
Lecturer in Electrical Engineering
B.S., 1958, Ph.D., 1963, University of Utah.

JEROME G. SOWUL (1968)
Lecturer in Applied Mathematics
B.S., 1948, M.S., 1949, University of Detroit.

IRVING STEIN (1968)
Lecturer in Electrical Engineering
B.S., 1942, Queens College; M.S., 1949, Stanford University.

PETER S. STERN (1969)
Visiting Assistant Professor of History
B.A., 1961, Denison University; M.A., 1964, Princeton University.

STEPHEN STRASEN (1968)
Assistant Professor of Mathematics
B.S., 1962, Carnegie Mellon University; Ph.D., 1968, University of California, Berkeley.

RONALD L. STUCKY (1966)
Professor of Business Administration; Chairman, Department of Marketing
B.S.A., Purdue University; M.B.A., Harvard University; Ph.D., Purdue University.

JOSEPH L. SUBBIONDO (1969)
Assistant Professor of English
B.A., 1962, St. John's University; M.A., 1965, University of Southern California.

GEORGE J. SULLWOLD, JR. (1962)
Associate Professor of English; Chairman, Department of English; Acting Chairman, Department of Classics
A.B., 1934, M.A., 1936, University of California, Los Angeles; Ph.D., 1958, University of Washington.

IRVING SUSSMAN (1956)
Professor of Mathematics
B.S., 1943, Columbia University; A.M., 1947, Johns Hopkins University; Ph.D., 1953, University of California, Berkeley.

MICHAEL A. SWEENEY (1966)
Assistant Professor of Chemistry
B.S., 1953, Loyola University, Los Angeles; M.S., 1955, Ph.D., 1962, University of California, Berkeley.

JAMES E. SWEETERS, S.J. (1968)
Assistant Professor of Religious Studies
B.A., 1947, University of Santa Clara; M.A., 1950, Gonzaga University; S.T.L., 1956, Alma College; S.T.D., 1969, The Pontifical Gregorian University.

ALEXANDER A. TAIT, S.J. (1956)
Associate Professor of Religious Studies
A.M., 1940, Gonzaga University.

FRANK E. TALKE (1969)
Lecturer in Mechanical Engineering
Diplom-ing, 1965, University of Stuttgart; M.S., 1966, Ph.D., 1968, University of California, Berkeley.

HAROLD M. TAPAY (1950)
Associate Professor of Civil Engineering
B.A.S., 1946, University of British Columbia; M.S., 1949, University of Washington. Registered Professional Engineer.

SALVATORE A. TASSONE, S.J. (1968)
Assistant Professor of Religious Studies
A.B., 1956, Gonzaga University; S.T.M., 1963, Alma College; S.T.D., 1968, The Pontifical Gregorian University.

CLYDE E. TAYLOR (1969)
Lecturer in Mechanical Engineering
B.S., 1952, M.S., 1953, Stanford University.

LLOYD A. TAYLOR (1969)
Lecturer in Electrical Engineering
B.S.E.E., 1961, University of Idaho; M.S.E.E., 1964, University of Southern California.

GABOR C. TEMES (1966)
Lecturer in Electrical Engineering
Diploma, Engineering, 1952, Technology University of Budapest; Diploma Physics, 1954, Eotvos University, Budapest; Ph.D., 1961, University of Ottawa.

GEORGE J. THALER (1962)
Lecturer in Electrical Engineering
B.E., 1940, Ph.D., 1947, The Johns Hopkins University.

KEITH J. THOMASSEN (1966)
Lecturer in Electrical Engineering
B.S., 1958, Chico State College; Ph.D., 1963, Stanford University.

NOEL PAGE THOMPSON (1964)
Lecturer in Bioengineering
A.B., 1951, Stanford University; M.D., 1955, University of California, Los Angeles School of Medicine; M.S.E.E., 1961, Stanford University.

IRIS M. TIEDT (1968)
Assistant Professor of Education
B.S., 1950, Northwestern University; M.A., 1962, University of Oregon.

GERALDINE A. TOMLINSON (1967)
Assistant Professor of Biology
B.S.A., 1957, University of British Columbia; M.A., 1961, University of California, Berkeley; Ph.D., 1964, University of British Columbia.

JAMES TORRENS, S.J. (1969)
Assistant Professor of English
A.B., 1954, Gonzaga University; S.T.L., 1962, St. Albert's College, Louvain; M.A., 1964, Ph.D., 1968, University of Michigan

JOSEPH M. TRICKETT (1958)
Professor of Administration; Chairman, Department of Administration; Director, The Management Leadership Center
Ph.B., Washburn University; M.B.A., Ph.D., Stanford University.

FRANK TUNG (1969)
Lecturer in Electrical Engineering
B.S.E.E., 1961, National Taiwan University; M.S.E.E., 1964, Rice University; Ph.D., 1968, University of California, Los Angeles.

DONALD E. TURNER, S.J. (1969)
Visiting Lecturer in Political Science
B.A., 1956, Gonzaga University; M.A., 1966, Stanford University.

ERNEST A. UNWIN (1969)
Lecturer in Applied Mathematics
B.S.E.E., 1956, University of British Columbia; M.S., 1960, Ph.D., 1967, University of Arizona.

ZBYNEK L. VANCURA (1962)
Associate Professor of Business Administration; Acting Chairman, Department of Quantitative Methods
A.B., Netherlands School of Economics; Drs.(Econ.)

CHRISTIAN L. VAN DEN BERGHE (1969)
Acting Assistant Professor of Modern Languages
B.A., 1961, M.A., 1963, Stanford University.

PRETORIUS VAN DEN DOOL (1965)
Associate Professor of Business Administration
B.A., M.A., D.B.A., University of Oregon.

PAUL VERDEN (1966)
Associate Professor of Sociology
B.A., 1958, Harvard University; M.A., 1961, Ph.D., 1965, Stanford University.

JOHN R. VIEGAS (1968)
Lecturer in Mechanical Engineering
B.S., 1958, M.S., 1959, Ph.D., 1967, Stanford University.

MARCEL VINOKUR (1965)
Lecturer in Mechanical Engineering
B.S., 1951, Cornell University; Ph.D., 1957, Princeton University.

LAWRENCE WEAR (1969)
Lecturer in Electrical Engineering
B.S., 1962, M.S., 1963, University of Washington; Ph.D., 1970, University of Santa Clara.

ROTRAUT WEISS (1969)
Instructor of Mathematics
Dipl. Math., 1956, Free University of Berlin.

ROBERT K. WEDELL (1968)
Lecturer in Mechanical Engineering
B.S., 1961, University of California, Berkeley; M.S., 1965, University of Santa Clara.

STEIN WEISSENBERGER (1965)
Associate Professor of Mechanical Engineering
S.B., 1960, S.M., 1960, Massachusetts Institute of Technology; Ph.D., 1965, Stanford University.

DIANA MORGAN WELCH (1964)
Artist in Residence—Ballet
Edna McRae School of Dance, 1945–52; Sadler Wells Ballet School, 1954; John Petri School of Ballet, 1958–60; Diana Morgan Welch Concert Dancers, 1958–64.

PHILIP B. WELCH (1963)
Associate Professor of Creative Arts; Chairman, Department of Creative Arts
B.A., 1947, Stanford University; M.Arch., 1952, University of Oklahoma; Reg. Arch., 1955, Illinois, 1964, California; N.C.A.R.B. License, 1958.

THADDEUS J. WHALEN, JR. (1962)
Associate Professor of Economics and Business Administration
B.S., 1958, University of Santa Clara; A.M., 1962, Ph.D., 1964, University of California, Berkeley.

THOMAS WHITNEY (1967)
Lecturer in Electrical Engineering
B.S., 1961, M.S., 1962, Ph.D., 1964, State University of Iowa.

JEROME C. WOODARD (1969)
Lecturer in Electrical Engineering
B.S., 1960, University of California, Berkeley; M.S., 1964, University of Santa Clara; Ph.D., 1969, Stanford University.

TENNANT C. WRIGHT, S.J. (1968)
Lecturer in Religious Studies
A.B., 1950, Loyola University of Los Angeles; M.A., 1956, Gonzaga University; S.T.L., 1963, Alma College.

WILLIAM W. YABROFF (1968)
Assistant Professor of Education
B.A., 1950, San Jose State College; B.D., 1953, Pacific School of Religion, Berkeley; M.A., 1961, Ph.D., 1963, Stanford University.

RAYMOND B. YARBROUGH (1963)
Associate Professor of Electrical Engineering
B.S., 1959, University of California, Berkeley; Ph.D., 1963, United States Naval Postgraduate School.

MICHEL ORRADRE LIBRARY

Victor Novak, Ph.D. ..... *Librarian*
Donald J. Duggan, S.J., M.L.S. ..... *Assistant Librarian*
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Tae Ock Kim, M.L.S. ..... *Science*
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Phyllis Hazelkamp, M.L.S. ..... *Cataloger*

RESERVE OFFICERS TRAINING CORPS

FRANCIS X. LEARY, COLONEL (1968)
Professor of Military Science
A.B., 1938, Harvard University; M.A., 1963, George Washington University.

JOHN W. HOLDSWORTH, MAJOR (1969)
Assistant Professor of Military Science
B.A., 1963, Arizona State University.

DONALD B. EMIGH, CAPTAIN (1969)
Assistant Professor of Military Science
B.A., 1964, Idaho State University.

EDWIN T. VERNON, CAPTAIN (1969)
Assistant Professor of Military Science
B.A., 1963, Jacksonville State University.

ARTHUR T. RAMEY, CAPTAIN (1970)
Assistant Professor of Military Science
B.A., 1963, University of San Francisco.

JOHN GARDINER, JR., SERGEANT MAJOR (1964)
Instructor in Military Science

EDWIN L. MOODY, MASTER SERGEANT (1969)
Instructor in Military Science

KENDALL C. TURNER, SERGEANT FIRST CLASS (1967)
Instructor in Military Science

DAVID J. NEVILLE, STAFF SERGEANT (1969)
Supply Sergeant

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